Name: _____ Date: _____

Periodic Trends Worksheet

Use the periodic table and your knowledge of periodic trends to answer the following questions.

1. Which particle has the larger radius in each atom/ion pair?
   a) Na, Na+ b) S, S2 c)1,1- d) Al, A13+
2. What is the periodic trend for first ionization energy?
   It increases going from left to right due to increased nuclear charge, and decreases going down a group due to increased distance from the nucleus and increased shielding
3. What is the periodic trend for electronegativity? Increases going left to right, decreases going down
4. Which atom in each pair has the larger atomic radius?
   a) Li or K b) Ca or Ni c) Ga or B d) O or C f) Be or Ba g) Si or S h) Fe or Au
5. Which element in each pair has a larger ionization energy?
   a) Na or O b) Be or Ba c) Ar or F d) Cu or Ra e) I or Ne
   f) K or V g) Ca or Fr h) W or Se
6. Arrange the following groups of elements in order of increasing ionization energy
   a) Be, Mg. Sr b) Bi, Cs, Ba c) Na, Al, S
   high, middle, low high, low, middle low, middle, high
7. What is the periodic trend for atomic size from top to bottom in a group? from left to right in a period? Top to bottom increases due to adding energy levels Left to right: decreases
8. Why do atoms get smaller as you move left to right in a period? due to increased nuclear charge and no added shielding
9. Explain the relationship between the relative size of an ion to its neutral atom and the charge on the ions Positive ions are smaller than the neutral atom it comes from, negative ions are larger than the neutral atom it comes from
10. What is ionization energy? What is first ionization energy? The amount of energy needed to remove an electron from an atom. First ionization energy is the energy required to remove a single valence electron from an atom.
11. Which element in each pair has a higher electronegativity value?
    a) Cl, F b) C, N c) Mg, Ne d) As, Ca