Worksheet on Periodic Trends Name_____

~~1. Periodic trends are properties that _____ or _____ going across a period or up or down a group.~~

2. Below is a rough sketch of the Periodic Table. Sketch in whether the following increase or decrease going across a period, left to right or going up a group: electronegativity, atomic radius, electron affinity, ionization energy.

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

3. Which atom in each pair has the **larger** atomic radius:
   a) O or C b) Be or Ba

4. Which atom in each pair has the **smaller** ionization energy:
   a) Na or Al b) N or P

5. Which atom in each pair has the **smaller** electronegativity:
   a) Cl or Br b) P or S

6. Which atom in each pair has the **larger** electonegativity:
   a) Al or Si b) Na or K c) O or P

7. Which is bigger: S atom or the S^{2-} ion? ____ Which is bigger the Mg atom or the Mg^{2+} ion?_____

8. Consider atoms of the following, which are located as shown in the Periodic Table: $_{16}S$ $_{17}Cl$
   a) Which has the **lowest** electron affinity?_____
   $_{34}Se$ $_{35}Br$
   b) Which has the **highest** electronegativity? _____
   c) Which has the **highest** ionization energy? _____
   d) Which has the **smallest** atomic radius? _____

9. Explain the relationship between
   a) the size of a positive ion and its atom b) the size of a negative ion and its atom

~~10. Which ion in each pair has the **smaller** ionic radius:~~
~~a) Na^+ or Cs^+ b) P^{3-} or S^{2-} c) F^- or S^{2-}~~

12. Why do atoms get smaller going across a period?

13. Why do nonmetals have high electronegativity and also high ionization energies?

14. Define electronegativity. What is the periodic trend for electronegativity?