Honors Chemistry

Worksheet 3-3 Name_____

Periodic Trends Period_____

1. Discuss the importance of Mendeleev's periodic law.

2. Identify each element as a metal, metalloid, or nonmetal.
   a) fluorine _____
   b) germanium _____
   c) zinc _____
   d) phosphorous _____
   e) lithium _____

3. Give two examples of elements for each category.
   a) noble gases _____
   b) halogens _____
   c) alkali metals _____
   d) alkaline earth metals _____

4. What trend in atomic radius do you see as you go down a group/family on the periodic table? What causes this trend?

5. What trend in atomic radius do you see as you go across a period/row on the periodic table? What causes this trend?

6. Circle the atom in each pair that has the largest atomic radius.

a)	Al	B	b)	S	O	c)	Br	Cl
d)	Na	Al	e)	O	F	f)	Mg	Ca

7. Define ionization energy.

8. Is it easier to form a positive ion with an element that has a high ionization energy or an element that has a low ionization energy? Explain.

9. Use the concept of ionization energy to explain why sodium form a 1+ ion (Na^{+}) but magnesium forms a 2+ ion (Mg^{2+}).

10. What trend in ionization energy do you see as you go down a group/family on the periodic table? What causes this trend?

11. What trend in ionization energy do you see as you go across a period/row on the periodic table? What causes this trend?

12. Circle the atom in each pair that has the greater ionization energy.

a)	Li	Be	b)	Na	K	c)	Cl	Si
d)	Ca	Ba	e)	P	Ar	f)	Li	K

13. Define electronegativity

14. What trend in electronegativity do you see as you go down a group/family on the periodic table? What causes this trend?

15. What trend in electronegativity do you see as you go across a period/row on the periodic table? What causes this trend?

16. Circle the atom in each pair that has the greater electronegativity.

a)	Ca	Ga	b)	Li	O	c)	Cl	S
d)	Br	As	e)	Ba	Sr	f)	O	S

18. Define electron affinity.

19. What trend in electron affinity do you see as you go down a group/family on the periodic table? What causes this trend?

20. What trend in electron affinity do you see as you go across a period/row on the periodic table? What causes this trend?