



Periodic Table Handout

Name _____ Date _____ Period _____

Use a Periodic Table and Answer the Following:

1. List 5 types of information that are given in each box of the periodic table:

a. _____ b. _____

c. _____ d. _____

e. _____

2. In the periodic table, where are the metals located? _____

3. Where are the nonmetals located? _____

4. What are the elements in groups 3 through group 12 called? _____

5. What are the elements called that are next to the stair-step-shaped line on the right side of the periodic table of elements? _____

6. What do we call the letter(s) that represents an element? (not abbreviations!) _____

7. How many elements are included in the modern periodic table? _____

8. What is the name given to the elements in group 1? _____

9. What is the name given to the elements in group 2? _____

10. What is the name given to the elements in group 17? _____

11. What is the name given to the elements in group 18? _____

12. What name is given to all vertical columns in the table? _____

13. What name is given to each horizontal row in the table? _____

14. How are elements arranged on the periodic table? _____

15. Who is the "Father of the Periodic Table of Elements? _____

16. What is the *octave rule*? _____

Several scientists including Newlands, Meyer and Mendeleev worked on classification systems that grouped elements according to their similar properties. They found that properties *repeated* in a regular or periodic manner. Scientists used this fact to predict properties of undiscovered elements.

1. In Table 1, write the maximum number of electrons that can (hold) fill each energy level on the blanks lines located in the table heading.
2. Write the total number of electrons for each element in the first column labeled Total.
3. For each element, assign the correct number of electrons to each energy level.
4. Complete Table 2 by using the information from the six elements in Table 1.

Table 1

Element	Electron Configuration: Level 1 is (inside) Closest to the Nucleus			
	Total Electrons	Level 1 holds ___e-	Level 2 holds ___e-	Level 3 holds ___e-
argon				
carbon				
helium				
lithium	3	2	1	0
silicon				
sodium				

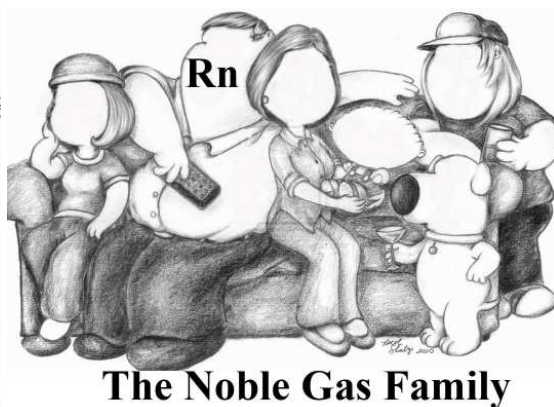
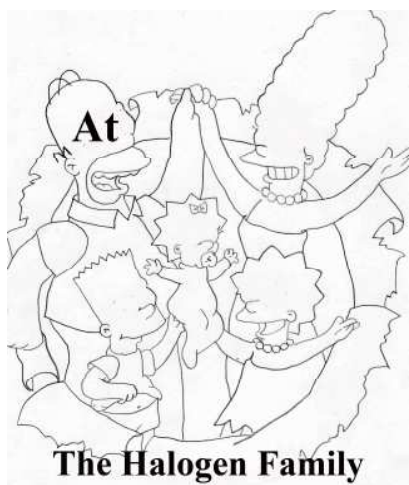
Table 2

Element	Energy Level of Outer Electrons	Element Located in Period #	Number of Outer Electrons	Element Located in Group #
Ar				
C				
He				
Li	2	2	1	1
Si				
Na				

1. How is the element's period related to the number of energy levels over which its electrons are spread? _____
2. How is the element's group related to the number of electrons it has in its valence (outer) level? _____
3. How can you predict an element's group and period? _____
4. If you know what group and period an element is in, explain how you also know it's electron configuration. _____

Chemical Families

1. Complete the portrait of each chemical family. Write the missing chemical symbol for each family member on their blank face. The order is not important so just fill in each face.



2. From the following descriptions, choose the one element that you would classify as belonging to the same chemical family as aluminum (Al): solid, metal, +3 ions, 3 valence electrons
- polonium (Po): solid, metal, -2 ion, 6 valence electrons
 - germanium (Ge): solid, metal, +4 ion, 4 valence electrons
 - cesium (Ce): solid, metal, +1 ion, 1 valence electron
 - gallium (Ga): solid, metal, +3 ion, 3 valence electrons

3. In your own words, tell what is meant by chemical family. _____

4. How can you use the periodic table of elements to tell if two elements are in the same family? _____

Use a Periodic Table of Elements to answer question 5-7

5. Lithium belongs to the alkali metal family. Lithium (Li): solid, metal, +1 ion, 1 valence electron
What other elements belong to the alkali metal family? _____

6. List 3 characteristics you can predict for all alkali metal elements. _____

7. Chlorine belongs to the halogen family. What other elements belong to the halogen family? _____

Complete the table below:

1. Write in the name each of the first 18 elements on the periodic table.
2. Write in the symbol for each of the first 18 elements on the periodic table.
3. Write in the number of electrons in each energy level of the first 18 elements.
(the electron configuration)

Atomic Number	Element Name	Element Symbol	Energy Level		
			1	2	3
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15	Phosphorus	P	2	8	5
16					
17					
18					