### [Periodic Table Webquest](http://m1sanders.edublogs.org/2009/12/03/physical-scienceperiodic-table-web-quest/)

### *Instructions:*

### *FIRST, save a copy of this document to your Google Drive.*

### *Second, work on the webquest at school, and*

### *LAST, share a copy of the document with* [*mrskemner@gmail.com*](mailto:mrskemner@gmail.com)*.*

**PART 1**  
Read though the text and graphics at <http://periodic.lanl.gov/default.htm> and answer the following questions.  
*Click on “How to Use the Periodic Table”*1. What is the atomic number? 1  
2. What is the atomic symbol? H  
3. What is the atomic mass?1.008

*If you can’t find the families on the previous website, try* <http://www.chemicalelements.com/show/name.html>*.*4. What are the 8 families of elements?

|  |  |  |
| --- | --- | --- |
| **Element Groups (Families)** | | |
| **Alkali Earth** | **Alkaline Earth** | **Transition Metals** |
| **Rare Earth** | **Other Metals** | **Metalloids** |
| **Non-Metals** | **Halogens** | **Noble Gases** |

*Go back to* <http://periodic.lanl.gov/default.htm>*: Click “About this Resource.” Find and click “Elements Get Final Names.” Read and answer the following questions:*

5. What international body of chemists has decided the names of 6 new elements? Union of Pure and Applied Chemistry,   
6. What element was named by Lawrence Berkeley Laboratory?neptunium.

7. What two elements did Seaborg’s group produce and what are their symbols? plutonium,rutherfordium

**PART 2: NAVIGATING THE PERIODIC TABLE**  
Directions: Using the websites listed below and a copy of the Modern Periodic Table, answer the following questions:  
<http://www.chem4kids.com/files/elem_families.html>

<http://www.thecatalyst.org/m03ptabl.html>

1. How many periods are there in the Modern Periodic Table? 7  
2. How many groups are there in the Modern Periodic Table? 18  
3. What are the general properties of the elements in the first two groups on the left side of the Modern Periodic Table? light weight and shiny  
4. What are the general properties of the elements in the group to the right in the Modern Periodic Table? Transition meatals Metalloids Noble Gases   
5. Find the element oxygen.

a. What does the “8” on the top of the chemical symbol signify? Atomic number

b. What does the number 15.999 signify?Atomic mass  
6. Find the element calcium.

a. What is the chemical symbol for calcium? CA

b. What is the atomic number for calcium?20

c. What is the atomic mass (weight) of calcium?40.078 u ± 0.004 u  
7. Find the element copper.

a. What is the chemical symbol for copper?CU

b. What is the atomic number for copper?29

c. What is the atomic mass (weight) for copper?63.546 u ± 0.003 u  
8. Find the element nitrogen.

a. What is the atomic number for nitrogen?7

b. How many electrons orbit its nucleus? They spin around the center

c. How many protons does it have?7

**PART 3: THEMES AND TRENDS ON THE PERIODIC TABLE**  
Directions: Using the web sites listed below and a copy of the Modern Periodic Table, answer the following questions:

<http://www.chem4kids.com/files/elem_families.html>  
<http://www.chemicalelements.com/index.html>  
<http://www.thecatalyst.org/m03ptabl.html>

1. How many groups (families) are there in the Periodic Table?7

2. How many elements are in your Periodic Table?118

3. How many periods are there in your Periodic Table?7

4. What is the basic theme of organization in the periodic table? Alkines metals

5. a. Why are the elements 57 though 70 and 89 through 102, found separately at the bottom of the table? because they are lower numbers

b. As what can the vast majority of elements in the Periodic Table be classified?in groups   
6. Look at the bold line shaped like a ***staircase*** on the right side of the table. What does it divide? the groups colors   
7. a. What are the metalloid elements?The **metalloids**; boron (B), silicon (Si), germanium (Ge), arsenic (As), antimony (Sb), tellurium (Te), polonium (Po) and astatine (At)

b. What are the properties of a metalloid?A **metalloid** is a chemical element with **properties** in between, or that are a mixture of, those of metals and nonmetals. There is neither a standard definition of a**metalloid** nor complete agreement on the elements appropriately classified as such.

9. GROUPS 1 (IA) and 2 (IIA).  
<http://www.chem4kids.com/files/elem_alkalaimetal.html>

a. Elements in Group IA are called the electrons\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_.  
b. All the elements in this group form high \_\_\_\_\_\_\_\_\_ ions with a positive negative\_\_\_\_\_\_\_\_\_\_ charge when they chemically react. proton\_\_\_\_\_\_\_\_\_\_\_ is the most reactive element in this group. These elements are very reactive with electrons\_\_\_\_\_\_\_\_\_\_\_\_\_.  
c. Elements in Group IIA are called the \_Alkiline earth metals\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  
d. All the elements in this group form positive \_\_\_\_\_\_\_\_\_\_ ions with a positive negative \_\_\_\_\_\_\_\_\_ charge. \_boron\_\_\_\_\_\_\_\_\_\_\_\_ is the most reactive element in the group.

10. Between groups 2 and 3 TRANSITION ELEMENTS (Metals) are Groups \_Advanced\_\_\_ through \_ideas\_\_\_\_\_\_.  
<http://www.chem4kids.com/files/elem_transmetal.html>  
Transition elements are those elements in which electrons from the outermost 2 principal energy levels may be involved in a chemical reaction.

11. GROUP 14 (1VA) “The \_\_\_carbon\_\_\_\_\_\_\_\_\_ Group”

\*<http://www.msu.edu/~hungerf9/bucky1.html>

a. What is the element at the top of the group?carbon

b. What is an allotrope? the thing at the top of the periodict table

c. Describe some of the important properties and uses of Silicon. 14

12. GROUP 15(VA) “The \_\_pitcno\_\_\_\_\_\_\_\_ Group”  
<http://webelements.com/webelements/elements/text/P/key.html>

a. Find three important physical and/or chemical properties of nitrogen. Nitrogen is a non-metal, it has two stable isotopes, and has 5 electrons in it's outer shell. they all have the same isitops   
b. What are three allotropes of phosphorus, how are they different? White, red, and black, black is the most stable, while white is the least stable. nitroging

13. GROUP 16(V1A)  
<http://www.webelements.com/webelements/elements/text/O/key.html>

a. What are the two allotropes of oxygen? air  
b. Describe what is happening to the metallic characteristics of these elements as you go down the Group. iron

14. GROUP 17(V11A) or the positbe \_\_\_\_\_\_\_\_\_\_\_ Group, which means \_\_\_negative \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  
<http://www.chem4kids.com/files/elem_halogen.html>

a. What is the common oxidation number (charge) for all elements in this group?ice   
b. Which elements in this group are diatomic? Fluorine, Chlorine, Bromine, Iodineccarbo n  
c. Describe the states of matter and physical properties of the first four elements in this group carbon

15. GROUP 18(O) or the \_\_glass\_\_\_\_\_\_\_\_\_ gases or \_\_\_\_gass\_\_\_\_\_\_\_\_\_ gases.  
<http://www.chem4kids.com/files/elem_inertgas.html>  
<http://chemicalelements.com/index.html>

a. How did this group of elements get their name? copper   
b. Which two elements can the larger elements in this group (Kr, Xe, Rn) react with because of their very large electronegativity values and small size? 788  
c. List two important properties of two of the noble gases.heat

e. List two important uses of two of the noble gases.gas gas

<http://www.chem4kids.com/files/elem_lanthanide.html>

<http://www.chem4kids.com/files/elem_actinide.html>

16. The Lanthanoid and Actinoid Series have incomplete sublevels, which is why they are found in the \_\_-block on the Periodic Table. The “rare elements” are found in these sections of the Periodic Table.the nitrogon