

Name: _____

Rows and Columns of the Periodic Table

Period: _____

Alkali Metals

Alkaline Earth Metals

Transition Metals

Boron

Carbon

Nitrogen

Oxygen

Halogens

Noble Gases

Rare Earth Elements

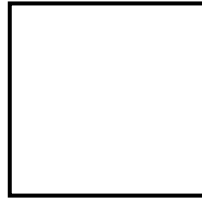
M - Metals

N - Nonmetals

L - Metalloids

Groups -

Periods -



1 H Hydrogen																	2 He Helium				
3 Li Lithium	4 Be Beryllium															5 B Boron	6 C Carbon	7 N Nitrogen	8 O Oxygen	9 F Fluorine	10 Ne Neon
11 Na Sodium	12 Mg Magnesium															13 Al Aluminum	14 Si Silicon	15 P Phosphorus	16 S Sulfur	17 Cl Chlorine	18 Ar Argon
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton				
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon				
55 Cs Cesium	56 Ba Barium	57 - 71 Lanthanides	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon				
87 Fr Francium	88 Ra Radium	89 - 103 Actinides	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium	113 Uut Ununtrium	114 Fl Flerovium	115 Uup Ununpentium	116 Lv Livermorium	117 Uus Ununseptium	118 Uuo Ununoctium				

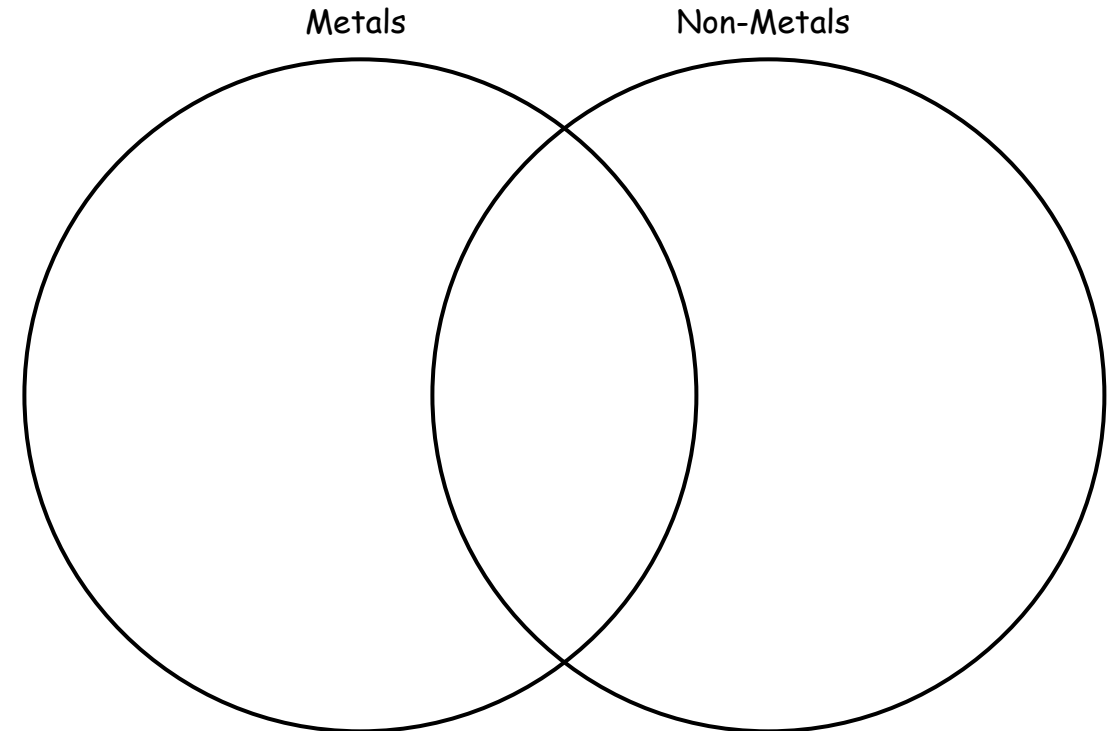
57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium
89 Ac Actinium	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium

Periodic Table

Conclusions:

1. Which elements make up a family?
2. How are the elements of a group or family alike?
3. What do the periods of the periodic table consist of?
4. List two ways that elements in a period differ from each other.
5. How do the families and periods differ other than their direction in the periodic table?
6. Why are the Lanthanoid and Actinoid series separated out from the main periodic table?
7. Identify the four pieces of information that can be obtained from the element square.
8. What are the horizontal rows on the periodic table called?
9. How are the elements arranged in the periodic table?

10. How do the number of valence electrons an element has change from column to column?
11. What does the bolded stair-step line mean on a periodic table?
12. Create a Venn diagram comparing and contrasting characteristics of metals from non-metals.



Activity: The Rows and Columns of the Periodic Table

The periodic table can tell one many things about the different elements. The elements fall into groups of families that are alike in some ways. Most elements in a family behave or react in the same way and have the same properties. But like the members of a human family, the elements are not exactly alike.

The elements in the periodic table are organized into rows and columns.

I. Columns: The **groups** or families of elements are shown in vertical (up and down) columns on the periodic table and are labeled with Roman Numerals. There are eighteen columns in the periodic table.

- The elements in each column have similar physical and chemical properties.
- The number of valence electrons of the elements in each column is equal. All the elements can gain, lose or share the equal number of electrons when they form a chemical bond.

II. Rows: Each horizontal row of elements is called a **period**. Unlike the elements in a family (or column), the elements in a period are not alike in properties. In fact the properties of the elements change greatly across any given row.

- Moving across the row, the first element in the row is an extremely active solid. The last element in each row is always a particularly inactive gas.
- There are seven periods of elements. One row has been separated out of periods 6 and 7. Even though they are displayed below the periodic table, they are still part of the table. They have been separated out to make the table shorter and easier to read.

Purpose: to identify the properties of the rows and columns of the periodic table.

Materials: periodic table textbook map colors markers

Procedure:

- Number each of the vertical columns, or **GROUPS**, on the periodic table using a blue marker across the top of the periodic table.
- Number each row, or **PERIOD**, of the periodic table using a red marker on the left side of the periodic table rows.
- Using a black marker, draw in the stair step that separates the metals from nonmetals.
- Label the metals, nonmetals, and metalloids by placing the following letters in the upper right corner of **each** element square on the periodic table.
M – metals, N – nonmetals, L – metalloids
- Color the first box of each family in the periodic table using the following key. Use map pencils for this step.

Alkali Metals – dark green	Nitrogen – pale green
Alkaline Earth Metals – medium blue	Oxygen – pink
Transition Metals – dark pink	Halogens – pale blue
Boron – light brown	Noble Gases – yellow
Carbon – purple	Rare Earth Elements – gray
- Create a color key for the families near the sample element square at the top of your periodic table.
- To your key, add a legend for the red and blue marker, indicating group or period and what those tell you about the elements.
- Complete the element square above the table.
- Answer the Conclusion questions on the back or your Periodic Table.