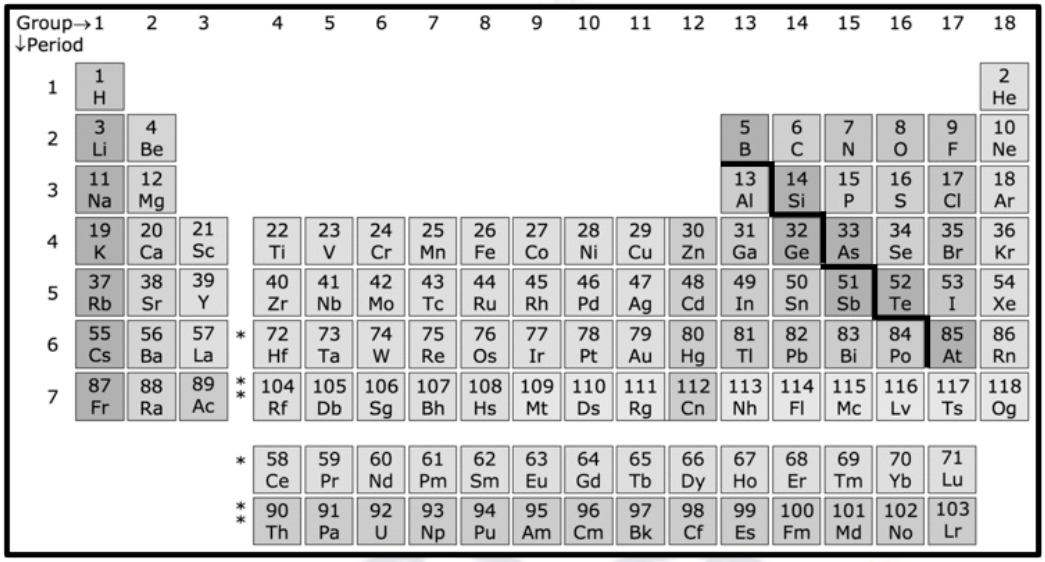
LEARNING ACTIVITY SHEETS
Grade 8 – Science

Name:_____Date: _____ Rating /Score:_____

PERIODIC TABLE AND PERIODICITY

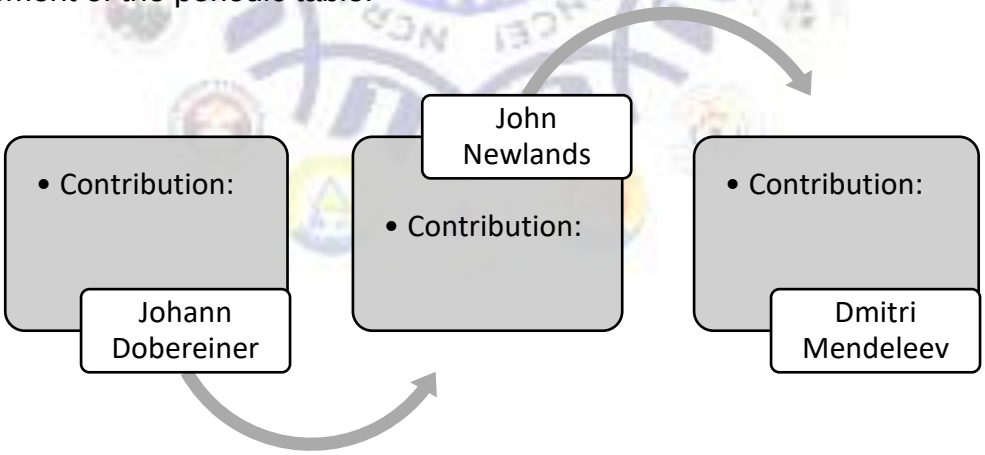
I. How Much Do You Know Me?

DIRECTIONS: Given the periodic table below and your knowledge on the development of the periodic table, answer the following questions.



https://commons.wikimedia.org/wiki/File:Simple_Periodic_Table_Chart-blocks.svg

1. The modern periodic table, as seen above, is a product of the development of the ideas from these three scientists. Fill in the flow chart below to follow the development of the periodic table.



2. Differentiate a group and a period. How many groups are there in the periodic table? How many periods?

3. In what period of the periodic table will you find two non-metals only?

Specific Week: 7 (LAS 4)
Target Competency: Use the periodic table to predict the chemical behavior of an element. (S8MT-IIIi-j-12)

4. What six elements have the appearance and properties of metal but behave like the non-metal in certain situations?

5. How would you classify the elements in the rightmost part of the periodic table?

   What about in the leftmost part of the periodic table?

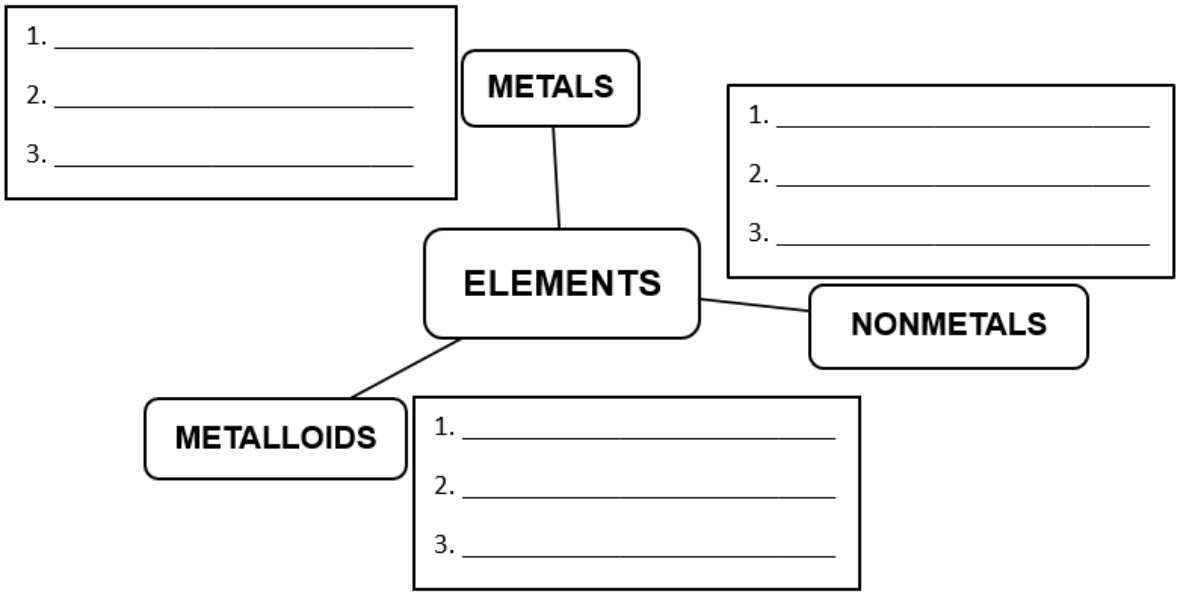
6. How would you describe the elements from Group 1 to Group 12 in the periodic table?

7. Describe the arrangement of the 118 elements in the periodic table. How is it arranged?

8. How useful is the Periodic Table for you as a Science student?

II. Metals, Non-Metals, and Metalloids

DIRECTIONS: Fill the concept web with at least three facts about metals, non-metals, and metalloids. Put in the first line their position in the periodic table, the second line their physical property, and in the third line, three specific examples.



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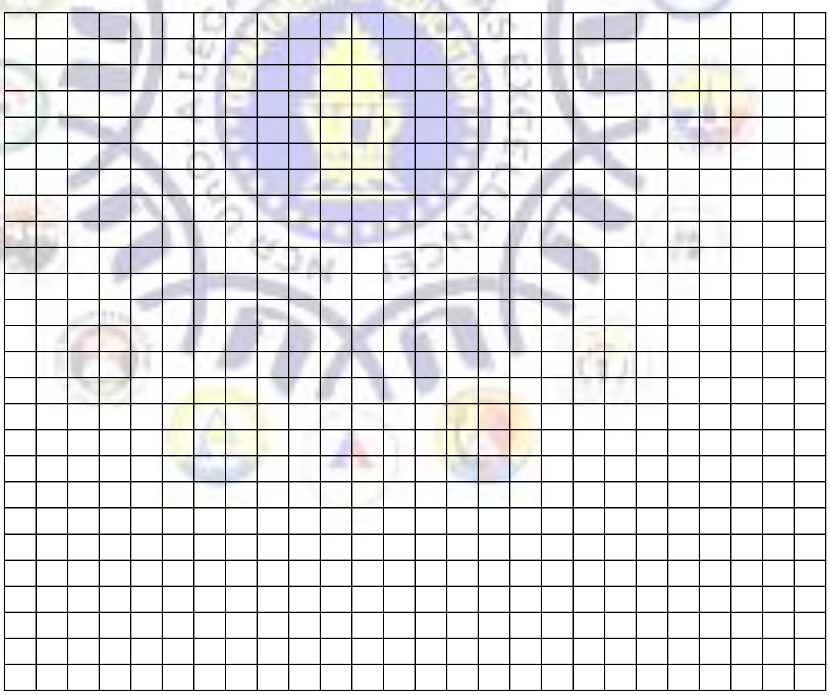
III. #Trending!

Because of the Periodic Law, the physical and chemical properties of the elements show a periodic pattern. In this part of the worksheet, you will graph the values of the first ionization energy as a function of the atomic number.

Given the values below and using the given graphing paper on the next page, create a graph of the ionization energy vs atomic number. On the X-axis, plot the atomic numbers, while on Y-axis, plot the ionization energy.

Symbol	Atomic Number	First Ionization Energy(kJ/mol)	Symbol	Atomic Number	First Ionization Energy(kJ/mol)
H	1	314	Na	11	119
He	2	688	Mg	12	176
Li	3	124	Al	13	138
Be	4	215	Si	14	188
B	5	191	P	15	242
C	6	260	S	16	239
N	7	335	Cl	17	299
O	8	314	Ar	18	363
F	9	402	K	19	100
Ne	10	497	Ca	20	141



Think and Reflect:

1. Define ionization energy.

2. Elements 1, 3, 11, and 19 are found in the same group. Describe the pattern of ionization energies in the given elements.

3. Elements 3, 4, 5, 6, 7, 8, and 9 are found in the same period. Describe the trend of ionization energy in the given elements.

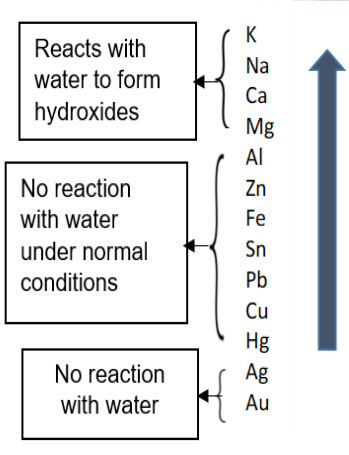
4. From the information you have gathered using the graphs, make a general statement on the trend of ionization energy across a period and down a group.

5. Using your periodic table, which has lower ionization energy between the given pair?
   a. Be or Sr _____ c. F or S _____
   b. K or Se _____ d. Al or O _____

6. State the trend of the following chemical properties as well across a period and down a group by writing INCREASING or DECREASING on the space provided in the table.

Chemical Property	Across a Period	Down a Group
Electron Affinity		
Atomic Size		
Electronegativity		

7. Study the diagrammatic representation of the reactivity of metals towards water and relate it to the previous activity.



Reactivity series of metals towards water

a. In what period and group can you see the elements that are the most reactive towards water?

b. Relate ionization energy with the most reactive elements using this frame:
The most reactive element towards water is …

c. Why are 24k gold, silver, and platinum pieces of jewelry not easily tarnished by sweat?