Name _____ Introduction to the Periodic Table

In the coming weeks, you will learn not only what the names of the elements are on the periodic table, but more importantly, why the periodic table is set up the way it is, and why the elements are arranged as such. Through this activity, and from the unit, you will soon be able to characterize and provide specific information for all 118+ elements listed on the periodic table.

Part 1:
Watch the short video of the making of the periodic table. Answer the following questions as the video plays.

1) What was the name of the scientist who wanted to attempt to organize the known elements of his time? _____
2) Why was he interested in putting together a chart or table of these elements? _____
   _____
3) How many known elements did he work with to organize? _____
4) What property did he use when grouping and organizing his elements together in a chart?
   _____

Part 2:
Take a look at the periodic table in your Chemistry Reference Tables. How many elements are there? _____ To determine the number of elements on the periodic table, what is the number you referred to called? _____ What does this number represent in terms of atomic structure? _____

Describe <u>how</u> the elements are numbered on the periodic table: _____

_____

_____

Now the table has two basic labels to designate the location of a given element: **<u>PERIODS</u> and <u>GROUPS</u>**.

The **<u>PERIODS</u>** are labeled on the left-hand side of the periodic table, and are numbered **1 to 7.**

Label the period numbers <u>in green</u> on the blank periodic table on the next page.

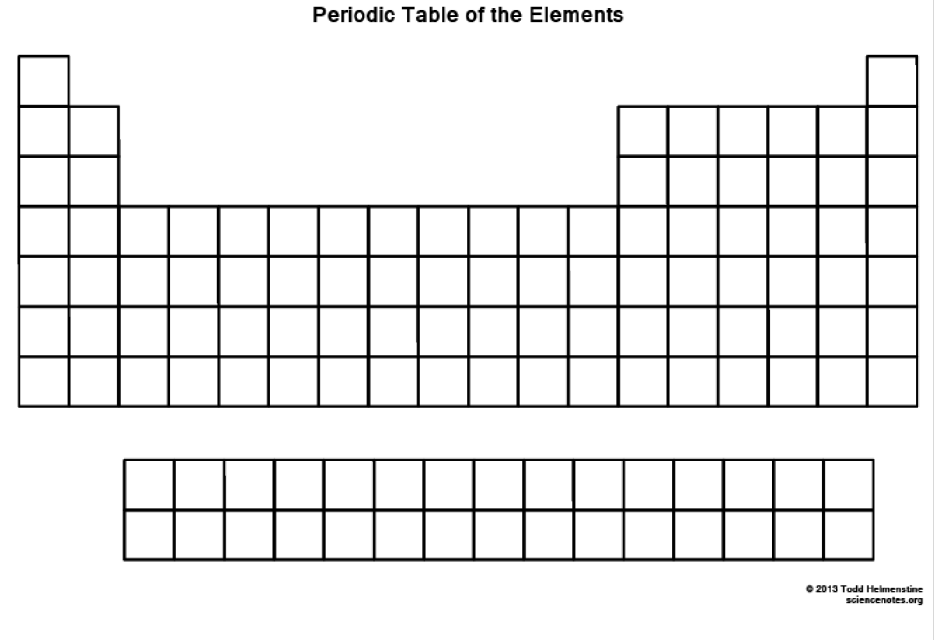
- Circle one: The periods run *across/up and down* the periodic table.
- Look at the electron configuration of all of the elements in Period 3. What is similar for each of these elements? _____
  - Each period number designates the number of _____ each element in that row has
  - Period 3: elements Na – Ar have 3 _____ _____
  - Period 6: elements Cs – Rn have 6 _____ _____

The **GROUPS** are labeled going across the table, and are numbered **1 to 18.**

Label the group numbers below in blue above on the blank periodic table.

- Circle one: The groups run *across/up and down* the periodic table.
- Look at the *valence electrons* of all the elements in Group 2. What is similar for each of these elements? _____
- Look at the *valence electrons* of all the elements in Group 17. What is similar for each of these elements? _____
    - Group numbers 1, 2, 13-18 designate the number of _____ each element in that group has
    - Groups 3-12 will be explained at a later time

For the following blank periodic table, label the period numbers in green and the group numbers in blue.



Questions:

1) What element is found in Group 8, period 4? _____
2) What element is found in Group 17, period 3? _____
3) What do all the elements have in common down group 13? _____
4) What do all the elements have in common across period 4? _____
5) How were the elements first arranged on the periodic table? _____
6) How are the elements arranged today on the modern periodic table? _____

Part 3: Basic element classifications

The elements on the periodic table can be classified into three categories:

- _____ - _____ - _____

Within these three categories are basic and general properties that most of the elements adhere to or possess. For the following groups of elements, come up with a list of descriptive words or properties to describe the elements under this category.

Metals	Semimetals (Metalloids)	Non-metals

Part 4: Other information to know

Periodic Law: _____

_____

Of the elements on the periodic table:

- What is used on the periodic table to separate the metals from the non-metals?

  _____
- What is the ONLY liquid metal on the table? _____ Nonmetal? _____
- What is the most reactive METAL on the table? _____
  - As you move from top to bottom on the left side of the periodic table, the metals become _____ reactive.
  - As you move across the table from left to right, the metals become _____ reactive
- What is the most reactive NON-METAL on the table? _____
  - As you move from top to bottom on the right side of the periodic table, the non-metals become _____ reactive.
  - As you move across the table from left to right, the non-metals become _____ reactive