Science 9 – Chemistry Unit Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**THE PERIODIC TABLE OF ELEMENTS**

* An organized chart containing information about the atoms that make up all matter
* An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a substance made up of only \_\_\_\_\_\_\_\_ type of atom.
* There are currently \_\_\_\_\_\_\_ identified elements
* The table is organized based on their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The chemical symbol for each element consists of 1 or 2 letters (or the newer ones have 3)– the symbol is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* If the symbol is only 1 letter, that letter is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* If it is 2 or 3 letters the \_\_\_\_\_\_\_\_\_\_\_\_\_ letter is capitalized, and the 2nd (& 3rd) letter is \_\_\_\_\_\_\_\_ capitalized.
* Originated in 1867 by Russian chemist & teacher, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**TABLE ORGANIZATION**

* Going horizontal (side-to-side) called: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Going vertical (up-and-down) called: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**METALS & NON-METALS**

A screenshot of a cell phone

Description automatically generated

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | State at Room Temp | Appearance | Conductivity | Malleability and ductility |
| Metals |  |  |  |  |
| Non-metals |  |  |  |  |
| Metalloids  (semi-metals) |  |  |  |  |

A screenshot of a cell phone

Description automatically generated**CHEMICAL FAMILIES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| FAMILY: |  |  |  |  |
| GROUP: |  |  |  |  |
|  | * Highly reactive * Reactivity increases as you go down the table * React with both oxygen and water * Low melting points (all below 200˚C) * Soft and can be cut with knife | * less reactive than alkali but will burn in air if heated * Produce bright flames and are used in fireworks * React with water but less vigorously than alkali * Low melting points (all below 200˚C) * Soft and can be cut with knife | * Non-metals * Highly reactive * States at room temp:   F and Cl = gases  B = liquid  I = solid   * Astatine is v. rare (*no one has collected enough to determine its physical properties)* | * Most stable * unreactive * at room temp: * colourless * odorless * gases * Some glow *(use electricity to ‘excite’ the atom)* |

Diagram

Description automatically generated**READING SYMBOLS:**

**Atomic Number**: the number of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in the nucleus of each atom. It is always a whole number.

* *Pattern*: atomic numbers **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** one by one through the periodic table

**Atomic Mass**: the mass of an average atom of an element. It is written as a decimal.

* *Pattern:* atomic mass tends to increase along with atomic number
* Mass is a combo of the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** & **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in an atom.
* \*There are some exceptions, i.e. Co and Ni

**Ionic Charge**: electric charge that forms on an atom when it gains/loses **\_\_\_\_\_\_\_\_**

* An electrically charged atom is called an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
* An atom that has gained electrons is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, and one that has lost electrons is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Some elements have a multiple ion charge – these elements can form ions in more than one way.
* *Pattern:* 
  + Elements on the LEFT side of the table generally form \_\_\_\_\_\_\_\_\_\_\_\_
  + Elements on the RIGHT side (except for the last column) generally form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions.
  + Elements that are in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ column often form ions with the same \_\_\_\_\_\_\_\_\_\_\_\_\_ charge as other elements in that column