Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_ Ast: \_\_\_\_\_

**Reading the Periodic Table**

An atom is made up of protons and neutrons which are in the nucleus, and electrons which are in the electron cloud surrounding the nucleus.

* **Group Number = family of elements**
  + Groups are vertical columns; the numbers are found at the top of each column
  + Note: Lanthanides and actinides are not assigned a group number (refer to them as “L” or “A”).
* **Atomic Number = number of protons** (p+)
  + Atomic Number is found above the atomic symbol on the periodic table
  + It distinguishes one element from another (the number of p+ makes each element unique)
* **Atomic Mass = # of protons + # of neutrons.**
  + Atomic Mass is found below the name of the element on the periodic table
  + It’s based on an average of the isotopes of that element (different #’s of neutrons), thus the decimal
* **# of electrons** (e-) **= # of protons** (in a neutral atom)
* **Classification = type of element** (metal, non-metal, metalloid)
* **Standard State = state of matter** (solid, liquid, gas)at standard temperature and pressure

***Use the information above and a periodic table to help you complete the following chart.***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Atomic Symbol** | **Element Name** | **Group #** | **Atomic #** | **Atomic Mass** | **# of p+** | **# of e-** | **Classification** | **Standard State** |
| Mg |  |  |  |  |  |  |  |  |
| K |  |  |  |  |  |  |  |  |
| Na |  |  |  |  |  |  |  |  |
| F |  |  |  |  |  |  |  |  |
| Al |  |  |  |  |  |  |  |  |
| H |  |  |  |  |  |  |  |  |
| Ag |  |  |  |  |  |  |  |  |
| Ts |  |  |  |  |  |  |  |  |
| Cl |  |  |  |  |  |  |  |  |
| Be |  |  |  |  |  |  |  |  |
| Hg |  |  |  |  |  |  |  |  |
| Au |  |  |  |  |  |  |  |  |
| Zn |  |  |  |  |  |  |  |  |
| W |  |  |  |  |  |  |  |  |
| Ca |  |  |  |  |  |  |  |  |
| Ne |  |  |  |  |  |  |  |  |
| Sb |  |  |  |  |  |  |  |  |
| Cn |  |  |  |  |  |  |  |  |
| Fe |  |  |  |  |  |  |  |  |
| Cu |  |  |  |  |  |  |  |  |

**STRUCTURE OF ATOMS**

Use a periodic table to help you identify & fill in the missing information for each element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Element Symbol** | **Element Name** | **Group #** | **Atomic #** | **Atomic Mass**  **(a.m.u.)** | **# of p+** | **# of e-** | **Classification** | **Standard State** |
|  |  |  | 25 |  | 25 |  |  |  |
|  |  | 14 |  | 28.09 |  |  |  |  |
|  |  |  |  | 112.41 | 48 |  |  |  |
|  |  | 10 |  |  | 78 |  |  |  |
|  |  | 16 |  |  |  |  | metal |  |
|  |  | 16 |  |  |  |  |  | gas |
|  |  |  |  |  |  | 2 | nonmetal |  |
|  |  | L |  | 138.91 |  |  |  |  |
|  |  | 14 |  |  |  |  | nonmetal |  |
|  |  |  |  |  |  | 5 | metalloid |  |

Answer the following:

1. What is the relationship between the number of protons in an atom and that element’s atomic number? Why is this number important?
2. What is the relationship between the number of protons and the number of electrons in a neutral atom? What would happen if the number of electrons increased or decreased?
3. What is the relationship between an element’s atomic mass and the number of sub-atomic particles in its nucleus? What sub-atomic particles are mainly responsible for the atomic mass?
4. Why is the atomic mass rarely a whole number (why do most have decimals)?
5. Describe the organization of the periodic table.