Unit 2 Study Guide

**Define the following terms:**

Group/Family

Period

Atomic Number

Mass Number

Isotope

Average atomic mass

Ion

Cation

Anion

Fission

Fusion

Half-life

**Metal/Non-metal/Metalloid:**

Holmium

Molybdenum

Chlorine

Antimony

Carbon

Radium

Aluminum

Astatine

**Fill in the following chart:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Subatomic Particle | Charge | Relative Mass | Location | Function |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Give the # of each subatomic particle and write the element in hyphen notation**

3115P 7031Ga 13756Ba 21085At

**Create a neutral compound and count the number of total atoms:**

Ca+MnO4

Al + C2H3O2

B + Cr2O7

NH4 + PO4

**Identify the following on the blank periodic table:**

Metalloids

Transition Metals

Alkali Metals

Actinides

Halogens

Lanthanides

Noble Gases

Alkaline Earth Metals

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**Calculate the average atomic masses in the following problems:**

 The element copper has naturally occurring isotopes with mass numbers of 63 and 65. The relative abundance and atomic masses are 69.2% for a mass of 62.93amu and 30.8% for a mass of 64.93amu. Calculate the average atomic mass of copper.

Calculate the average atomic mass of sulfur if 95.00% of all sulfur atoms have a mass of 31.972 amu, 0.76% has a mass of 32.971amu and 4.22% have a mass of 33.967amu.

Calculate the average atomic mass of bromine. One isotope of bromine has an atomic mass of 78.92amu and a relative abundance of 50.69%. The other major isotope of bromine has an atomic mass of 80.92amu and a relative abundance of 49.31%.

**Find the missing nuclear symbol and identify the type of radiation:**

\_\_\_\_\_\_\_\_ → 0-1e + 147N

73Li + 73Li → 42He + \_\_\_\_\_\_\_\_\_\_\_

20884Po → \_\_\_\_\_\_\_\_ + 42He

146C → 147N + \_\_\_\_\_\_\_\_\_

**Calculate the following half-life problems:**

What is the half-life of an element if after 40 days 1.25 grams of the original 10 grams remains?

How much of the original 1.00 grams of an unknown element will remain after 3 days if the half -life of the unknown element is 12 hours?

What is the half-life of an element if 73 grams of the original 1168 grams of the substance remains after 420 years?

The half -life of a certain element is 3.12 seconds. After 12.48 seconds how much of the original 89 grams of the element will remain?