Summary of Chemistry Concepts From the Fall Semester

S4

- Converting units is an important skill that every scientist needs. When you convert units you can multiply by a _____ _____ which is just a ratio of two terms that are equal, but have different _____. This works because of the identify property of multiplication where the product of _____ and a number is just that number.
- _____ _____ are important when maintaining precision in calculations.
- Scientist also use _____ _____ to show really large or really small numbers.

S12

- There are four major states of matter. They are:
  - _____ - definite shape and volume, Eg. _____
  - _____ - indefinite shape and indefinite volume, Eg. _____
  - _____ - indefinite shape and definite volume, Eg. _____
  - _____ - ionized gas that gives off light, Eg. _____

S13

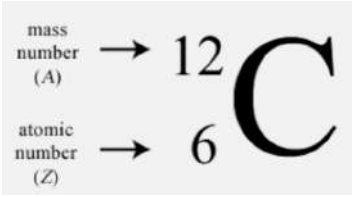
- The _____ is the smallest piece of matter that can still be identified as an element.
- If a substance is made up of only atoms that all have the same number of protons this is called an _____. If a substance contains one or more elements this is called a _____.
- Formulas are used to show how these elements chemically combine. While coefficients show how many total molecules of a compound there are (and therefore can change), _____ show how many atoms of an element are present in a compound and can not change.

S17

- Atoms are made up of three subatomic particles:
  - _____ have no mass and have a negative charge
  - _____ have a mass of 1 amu and have a positive charge
  - _____ have a mass of 1 amu and have a neutral charge
- _____ and _____ are located in the nucleus.
- The _____ is the number of protons plus neutrons.
- The number of _____ of an atom is it's identity! If this number changes so does the identity of the atom.

S19

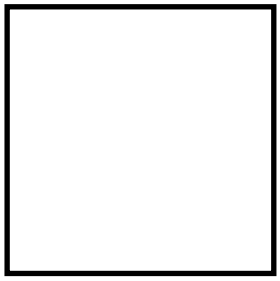
- _____ _____ is the shorthand way to write an isotope name. Carbon 12 would be written like this:



  - The _____ _____ could be omitted since it is directly related to the symbol of the element.

S26

- We will still be using the periodic table heavily in this semester. Draw a sample box from the periodic table and label the major parts:



- There are there three main types of elements:
  - _____ are located on the left and middle of the periodic table. They are shiny and conduct heat and electricity well.
  - _____ are located on the far right side of the table. They mostly exist as gases at room temperature.
  - _____ are located near the stairstep on the right side of the table. They have properties of metals and nonmetals.

S27

- _____ is a measure of how easily an element reacts with other elements.

S31

- _____ are formed when two or more elements are chemically bonded together.

S33,35 &36

- There are three main types of bonds:
  - _____ is the strongest of bonds because electrons are "stolen". These form between _____ and _____.
  - _____ is the bond where electrons are shared. These form between two _____.
  - _____ creates a sea of electrons and forms between two _____.
- The types of bonds that are inside of compound dictate its physical characteristics:
  - _____ bonds have a low melting point, while _____ and _____ bonds have high melting points.
- _____ is a measure of how strongly atoms attract the electrons shared between atoms inside molecules.

S31

- _____ _____ are covalently bonded molecules that act as ions in reactions.

S40+

- _____ _____ are assigned to elements based on how many electrons they want to gain or lose to have a full octet.

Other notes:

-
-
-