

7th Grade Review Sheet      Wow-----We have learned a ton of chemistry this year.....here are the highlights.

1. Basic atomic structure and theory of what the atom looks like (atomic theory)

a. There are 3 main particles that make up the atom

The \_\_\_\_\_ (\_\_\_\_\_ charge) and the \_\_\_\_\_ (\_\_\_\_\_ charge) are located in the nucleus of the atom.

The \_\_\_\_\_ (\_\_\_\_\_ charge) is located in the \_\_\_\_\_ and is used in bonding. The \_\_\_\_\_ used in bonding are called \_\_\_\_\_.

b. Dalton's Model:

c. Thomson's Model:

d. Rutherford's Model:

e. Bohr's Model:

f. Current Atomic Model:

g. Using the "MAN" method to find how many neutrons an element has.

Mass (rounded) - Atomic# = #Neutrons

How many neutrons does Rubidium have? \_\_\_\_\_

How many neutrons does Boron have? \_\_\_\_\_

How many neutrons does Chlorine have? \_\_\_\_\_

2. Periodic Table:

a. Who came up with/organized the Periodic Table?

b. The columns in the Periodic Table are called \_\_\_\_\_ and the elements in those columns all have the same number of \_\_\_\_\_ and similar chemical properties.

c. The rows in the Periodic Table are called \_\_\_\_\_ and the elements in the rows increase by 1 \_\_\_\_\_ for each number they go up.

## Groups in the Periodic Table:

Alkali:

Alkaline Earth Metals:

Transition Metals:

Halogens:

Noble Gases:

## 3. Chemical vs. Physical Change

Characteristics of a chemical change (a chemical change occurs when a new substance is created)

Characteristics of a physical change (a physical change is when no new substance is created)

\*\*\*\*\*change of state is a physical change!!

3. Law of Conservation of Mass (which we prove through balancing of chemical equations!!!) states that matter is neither created or destroyed during a chemical or physical change

4. Practicing balancing chemical equations (make sure you show your work and make your chart!!)

a. counting elements (remember, if it has a subscript  $Al_2=2$ , If it has a coefficient, you multiply the subscript by the coefficient  $4Al_2= 8$ , if it has ( ) you need to multiply it  $(Al_2)_3= 6$ .....put it all together.....

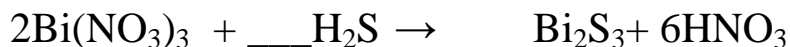
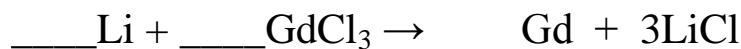
$$4(Al_2)_3= 24$$

$$3H_2O= \underline{\hspace{2cm}}$$

$$2(PO_4)_2= \underline{\hspace{2cm}}$$

$$2H_2SO_4= \underline{\hspace{2cm}}$$

b. balancing the equations



## 5. Exothermic vs. Endothermic Reactions

a. in an \_\_\_\_\_ reaction heat is released, thus temperature of the products is increased.

b. in an \_\_\_\_\_ reaction heat is absorbed, thus temperature of the products is decreased.

## 6. Bohr Diagrams

Bohr diagrams are used to show how many electrons (and what energy shell) are in each element (remember though---we are only doing this for the first 20 elements and the energy shells become full 1<sup>st</sup> shell=2, 2<sup>nd</sup> shell= 8, 3<sup>rd</sup> shell= 8, 4<sup>th</sup> shell=2.....then things get wonky----so we stop before we get to the transition metals☺)

a. draw a Bohr diagram for element 5, 12, 19 and write what energy level the electrons are in

## 7. Lewis Structures

Lewis structures are used to show how many valence electrons an element has. A quick way to do this is to see what family it is in (again----we are ignoring the transition metals). The family # (1, 2, 13, 14, 15, 16, 17, 18) is how many valence electrons the element has.

Draw the Lewis Structure for Phosphorus, Cesium and Xenon

8. Ionic Bonds: Ionic Bonds are between a \_\_\_\_\_ charged metal and a \_\_\_\_\_ charged non-metal.

An element becomes positively charged when it \_\_\_\_\_ an electron(s)

An element becomes negatively charged when it \_\_\_\_\_ an electron(s)

Draw the ionic bond (show the before—with Lewis Structures, the charges, then the final with the full shell Lewis structure and the charges)

Cesium Chloride (CsCl)

Calcium Oxide (CaO)

Sodium Oxide (Na<sub>2</sub>O)