ASSESSMENT – STUDENT ACTIVITY SHEET

Let Us Bond Together!

Name: _____ Date: _____ Period_____

OBSERVATIONS: Single Band Double Band Triple Band
WEIGHT TO BREAK: _____ grams _____ grams _____ grams

Prediction of relative strengths of single, double, and triple bonds.

_____

_____

Group # for Carbon = _____ Number of Valence electrons_____
Number of electrons needed for Carbon to reach stability _____
Maximum number of single bonds carbon can form _____
Maximum number of double bonds carbon can form_____
Maximum number of triple bonds carbon can form_____
Group # for hydrogen = _____ Number of valence electrons_____
Number of electrons needed for hydrogen to reach stability_____
Maximum number of single bonds that hydrogen can form _____
Maximum number of double bonds that hydrogen can form _____
Maximum number of triple bonds that hydrogen can form_____

Bond illustration of double carbon chains:

C_2H_6	C_2H_4	C_2H_2

Which compound would be the hardest to break apart? _____

Predict the level of the electronegativity values for the following 10 elements based on their periodic locations:

(a) None (b) Low (c) Moderate (d) High

1. Sodium _____
2. Fluorine _____
3. Xenon _____
4. Iron _____
5. Sulfur _____
6. Calcium _____
7. Mercury _____
8. Aluminum _____
9. Silicon _____
10. Oxygen _____

Predict the types of bonds that will form between each of the following pairs of elements based on their periodic locations: (a) Non-polar Covalent (b) Polar Covalent (c) Ionic.

1. Potassium + Chlorine _____
2. Iodine + Iodine _____
3. Iron + Sulfur _____
4. Xenon + Oxygen _____
5. Calcium + Fluorine _____
6. Nitrogen + Nitrogen _____
7. Aluminum + Bromine _____
8. Hydrogen + Oxygen _____
9. Lead + Selenium _____
10. Lithium + Phosphorous _____

6. Fill in the following chart showing an understanding of predicting the central atom, bonding atom(s) and kind of bond (single, double, triple) that forms during the creation of a compound from its component elements based on their electronegativities values as determined from their periodic locations.

COMPOUND FORMED	CENTRAL ATOM	BONDING ATOM(S)	KIND OF BOND
1. KCl			
2. I_2			
3. FeS			
4. XeO_4			
5. CaF_2			
6. N_2			
7. $AlBr_3$			
8. H_2O			
9. $PbSe_2$			
10. Li_3P			

Models of bond types and kinds in selected compounds:

1. Chlorine – Cl_2
2. Nitrogen – N_2
3. Carbon Dioxide – CO_2
4. Aluminum Bromide – $AlBr_3$
5. Ammonia – NH_3
6. Zinc Sulfide – ZnS
7. Lithium Fluoride – LiF
8. Calcium Oxide – CaO
9. Lead Chloride – $PbCl_4$
10. Potassium Nitride – K_3N