Name _____ Period _____ Date _____

The Mole #1 – Formula Writing and Molar Mass (Honors)

FORMULA WRITING: *Answer the following questions using your notes from last Marking Period, the class web site or your text. Class web site reference:*
http://www.broadneck.org/wohlfarth1/chem_name_formula_honors.html

1. List the steps for writing a chemical formula:

    1.

    2.

    3.

2. Explain when and why polyatomic ions get parentheses in a formula (HINT: use an example).

Write the chemical formula for the following:

3. Beryllium chloride

4. Aluminum phosphide

5. Calcium sulfide

6. Boron trifluoride

7. Carbon tetrabromide

8. Sulfur dioxide

9. dinitrogen trisulfide

10. Sodium phosphate

11. Lithium acetate

12. Potassium hydroxide

13. Aluminum sulfite

14. Calcium cyanide

15. Silver nitrate

16. Ammonium carbonate

17. Iron (III) chloride

18. Iron (IV) oxide

19. Lead (II) nitrate

20. Nickel (II) perchlorate

You can find the mass of 1 atom in atomic mass units (amu or u) by looking at the periodic table. The mass of one Al atom is 27.0 amu rounded to three significant figures.

The mass of one mole of any element is the molar mass of that element, measured in grams/mole.

- The molar mass of Al is 27.0 g/mole
- Notice, the mass in grams of one mole of atoms is numerically the same as the mass in atomic mass units of one atom.

1 Al atom 27.0 amu
1 mole Al atoms 27.0 g

You can use the periodic table to find molar masses.

<u>Example</u>: Find the molar mass of carbon. What is the mass of 1 carbon atom?*

To find the molar mass of a compound, add the molar masses of the elements in the compound.

Example: What is the molar mass of sucrose, $C_{12}H_{22}O_{11}$?

C   12.0 gx 12   = 144.0 g
H   1.0 g x 22   = 22.0 g
O   16.0 gx 11   = <u>176.0 g</u>
                           342.0 g/mol

Calculate the molar mass for the following rounded to three sig figs:

2. K	5. CCl_2F_2	8. $Pb(NO_3)_2$
3. Na	6. CH_3COOH	9. $Al_2(SO_3)_3$
4. Cl_2	7. $C_6H_{12}O_6$	10. $(NH_4)_2CO_3$

11. What is the mass of 1 mole of lithium?

12. What is the mass of 1 atom of argon?

13. What is the mass of 1 mole of H_3PO_4?

14. What is the mass of 1 molecule of CO_2?

*answer 12.0 g/mol