

Name: \_\_\_\_\_

Period: \_\_\_\_\_

LCM 5

**Test Review**

1. Products <u>E</u>	<u>A</u> . Chemicals are mixed and get hot.	1. Coefficient <u>B</u>	<u>A</u> . Correct way to smell chemicals
2. Exothermic <u>A</u>	<u>B</u> . The chemicals before the reaction.	2. Wafting <u>A</u>	<u>B</u> . Tells you the number of molecules.
3. Physical change <u>F</u>	<u>C</u> . When chemical bonds are broken and new substances are formed.	3. Ammonia <u>C</u>	<u>C</u> . Should never be combined with Chlorine bleach.
4. Chemical reaction <u>C</u>	<u>D</u> . A chemical reaction that gets cold.	4. Arrow <u>D</u>	<u>D</u> . Means "produces" or "creates".
5. Endothermic <u>D</u>	<u>E</u> . The result of a chemical reaction.	5. Precipitate <u>F</u>	<u>E</u> . Tells you the number of atoms in a chemical formula.
6. Reactants <u>B</u>	<u>F</u> . No new chemicals are formed.	6. Subscript <u>E</u>	<u>F</u> . When a liquid turns cloudy. Means a solid was formed.

*Endothermic or Exothermic Reaction?*

X Two chemicals are mixed and get hot?  
N Heat goes into the reaction? Endo, heat enters  
N An activated cold pack?  
N Two chemicals are mixed and get cold?  
X Combustion? (Fire = heat)  
X Heat comes out of a reaction?  
X An activated heat pack?

*Chemical or Physical Change?*

<u>C</u> Bubbles are formed.	<u>P</u> Evaporation
<u>P</u> Melting	<u>P</u> Ripping
<u>C</u> Gets cold	<u>C</u> Photosynthesis <small>products are diff than reactants</small>
<u>C</u> Color changes	<u>C</u> Gets hot
<u>P</u> Boiling	<u>C</u> Changes smell
<u>P+C</u> Digestion	<u>P</u> Dissolving Salt
<u>C</u> Changes temperature	<u>C</u> Combustion
<u>P</u> Chewing	<u>C</u> Changes taste

*Find the atomic masses for the following elements*

A. Lithium = <u>6.94</u>	E. Aluminum = <u>26.98</u>
B. Helium = <u>4.00</u>	F. Bromine = <u>79.90</u>
C. Iron = <u>55.85</u>	G. Uranium = <u>238.03</u>
D. Silver = <u>107.86</u>	H. Nickel = <u>58.69</u>

*Find the molecular mass of the following compounds.*

$Cl_2 (2 \times 35) = 70 \text{ amu}$

$Li_2O (2 \times 7) + (1 \times 16) = 14 + 16 = 30 \text{ amu}$

$Na(NO_3) (1 \times 23) + (1 \times 14) + (3 \times 16) = 23 + 14 + 48 = 37 + 48 = 85 \text{ amu}$

*How many total molecules are there?*

<u>2</u> 2H <sub>2</sub> O	<u>2</u> 2Be <sub>3</sub> N <sub>2</sub>	<u>3</u> 3C <sub>2</sub> F <sub>4</sub>
<u>5</u> 5Na <sub>2</sub> S	<u>4</u> 4Br <sub>2</sub>	<u>2</u> 2K(OH)

*How many total atoms are there?*

<u>6</u> 2H <sub>2</sub> O	<u>10</u> 2Be <sub>3</sub> N <sub>2</sub>	<u>18</u> 3C <sub>2</sub> F <sub>4</sub>
<u>15</u> 5Na <sub>2</sub> S	<u>8</u> 4Br <sub>2</sub>	<u>6</u> 2K(OH)

Products are on the right side of a chemical reaction.  
 Reactants are on the left side of a chemical reaction.  
 The arrow points to the products.

C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> + 6O<sub>2</sub> → 6CO<sub>2</sub> + 6H<sub>2</sub>O + energy

Circle the first reactant: (glucose)

Name the first product: carbon dioxide

How many hydrogen atoms on the product side? 12

How many oxygen atoms on the reactant side? 18

Is this respiration or photosynthesis? makes CO<sub>2</sub>

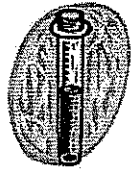
What kind of reaction is it? combustion

Endothermic or exothermic? makes energy

*Photosynthesis or Respiration?*

<u>R</u> Creates carbon dioxide	<u>R</u> Necessary to make ATP
<u>P</u> Creates oxygen	<u>P</u> Endothermic (needs sunlight)
<u>R</u> Uses oxygen	<u>R</u> Exothermic (hot breath)
<u>P</u> Uses carbon dioxide	<u>R</u> A combustion reaction
<u>R</u> Uses glucose	<u>R</u> Produces water
<u>P</u> Produces glucose	<u>P</u> Uses water
<u>R</u> Done in animals	<u>P</u> Occurs in chloroplast
<u>P</u> Done in plants	<u>R</u> Occurs in mitochondria
<u>R</u> Done in all cells	<u>P</u> Uses sunlight for energy

*Open or closed reaction?*



Open or closed reaction?

Will the mass of his products be greater than, less than, or equal to his reactants?

Why? products are trapped (nothing can escape)

What does this set up allow us to prove?  
Law of Conservation of Mass

Name: \_\_\_\_\_

Period: \_\_\_\_\_

1. Molecular Mass <u>C</u>	<input checked="" type="checkbox"/> A. When the reactants equal the products.	$4\text{Li} + \text{O}_2 \rightarrow 2\text{Li}_2\text{O}$ 10g + 12g      ?g $10 + 12 = 22\text{g}$	If 10 g of Lithium reacts with 12 g of molecular Oxygen, how much Lithium Oxide is produced?
2. Closed System <u>B</u>	<input checked="" type="checkbox"/> B. When the reaction is closed and gases can't escape.		
3. The Law of Conservation of Mass <u>E</u>	<input checked="" type="checkbox"/> C. How heavy a compound or molecule is.		
4. Open System <u>D</u>	<input checked="" type="checkbox"/> D. When gases aren't caught by the experimental setup.		
5. Atomic Mass <u>F</u>	<input checked="" type="checkbox"/> E. In a closed reaction mass cannot be lost.	$\text{Mg} + \text{Cl}_2 \rightarrow \text{MgCl}_2$ 9g + ?g      35g $9 + x = 35$ $x = 35 - 9 = 26\text{g}$	If 9 g of Magnesium reacts with Chlorine to produce 35 g of Magnesium Chloride, how much Chlorine was used in the reaction?
6. Balanced Reaction <u>A</u>	<input checked="" type="checkbox"/> F. The decimal numbers on the periodic table.		

Write the following reaction, being sure to use the correct ionic formulas (balanced ionic compounds).  
 "Magnesium Bromide reacts with Lithium Oxide to produce Magnesium Oxide and Lithium Bromide"  
 $\text{Mg}^{2+}\text{Br}_2^{1-} + \text{Li}_2^{1+}\text{O}^{2-} \rightarrow \text{Mg}^{2+}\text{O}^{2-} + \text{Li}^{1+}\text{Br}^{1-}$   
 So,  $\text{MgBr}_2 + \text{Li}_2\text{O} \rightarrow \text{MgO} + \text{LiBr}$

$2\text{NaF} + \text{K}_2\text{O} \rightarrow \text{Na}_2\text{O} + 2\text{KF}$   
 8g + 9g      ?g      11g  
 $17\text{g} \rightarrow x + 11$   
 $-11$        $-11$   
 $6\text{g} = x$       6g

Using the numbers given, find how much  $\text{Na}_2\text{O}$  was produced in the reaction.

Why do we balance chemical reactions?  
 To fulfill the Law of Conservation of Mass. (Reactants must = products).

Expand out these compounds.

$3\text{NaCl} = \text{NaCl} + \text{NaCl} + \text{NaCl}$   
 $4\text{MgO} = \text{MgO} + \text{MgO} + \text{MgO} + \text{MgO}$   
 $(\text{OH})_2 = \text{OH} + \text{OH}$

Write the following in reaction notation.

$2\text{BeCl}_2 = \text{Be}_2\text{Cl}_4$        $\text{Li}_2\text{O} = \text{Li}_2\text{O}$   
 $4\text{Na} = \text{Na}_4$        $6\text{K}_2\text{S} = \text{K}_{12}\text{S}_6$   
 $3\text{Al}_2\text{O}_3 = \text{Al}_6\text{O}_9$        $7\text{H}_2\text{O} = \text{H}_{14}\text{O}_7$

**Type of Reaction**

Double Displacement

Addition (or Synthesis)

Decomposition

combustion

single displacement

**Balance these reactions:**

$\frac{2}{\text{K}_6\text{N}_2} \text{K}_3\text{N} + \frac{3}{\text{Ca}_2(\text{CrO}_4)_3} \text{Ca}(\text{CrO}_4) \rightarrow \frac{1}{\text{Ca}_3\text{N}_2} \text{Ca}_3\text{N}_2 + \frac{3}{\text{K}_6(\text{CrO}_4)_3} \text{K}_2(\text{CrO}_4)$

$\frac{4}{\text{Fe}_4} \text{Fe} + \frac{3}{\text{O}_6} \text{O}_2 \rightarrow \frac{2}{\text{Fe}_4\text{O}_6} \text{Fe}_2\text{O}_3$

$\frac{2}{\text{N}_2\text{H}_6} \text{NH}_3 \rightarrow \frac{1}{\text{N}_2} \text{N}_2 + \frac{3}{\text{H}_6} \text{H}_2$

$\frac{4}{\text{N}_4\text{O}_4} \text{NH}_3 + \frac{5}{\text{O}_2} \text{O}_2 \rightarrow \frac{4}{\text{N}_4\text{O}_4} \text{NO} + \frac{6}{\text{H}_{12}\text{O}_6} \text{H}_2\text{O}$

$\frac{1}{\text{Ag}_2(\text{NO}_3)_2} \text{Mg} + \frac{2}{\text{Ag}(\text{NO}_3)} \text{Ag}(\text{NO}_3) \rightarrow \frac{1}{\text{Mg}(\text{NO}_3)_2} \text{Mg}(\text{NO}_3)_2 + \frac{2}{\text{Ag}} \text{Ag}$