NAME_____ **DATE**_____ **CLASS**_____

STUDY GUIDE Chapter 21

Chemical Equations

Use the terms in the box to fill in the blanks in the following paragraphs.

atoms	balanced	chemical reaction	coefficients
correct	element	equation	formula
mass	Mg(cr)	numbers	products
reactants	substance	two	yields

A _____ is a well-defined example of a chemical change. A chemical _____ can be used to show the changes that occur in a chemical reaction. In a chemical equation, the substances on the left side of the arrow are the starting substances. These substances are called _____ . The substances on the right side of the arrow are the substances that result from the reaction. These substances are called _____ . The arrow is read as either produces or _____

According to the law of conservation of_____ , atoms are neither lost nor gained during a chemical reaction. This law is illustrated when a chemical equation is _____ . When this is done, there will be the same number of _____ of each kind on both sides of the equation.

In a chemical equation, the numbers that are placed in front of the symbols and the formulas are called _____ . They are necessary to keep the _____ of atoms in balance.

There are several rules for balancing an equation. First, write the correct _____ for each reactant and product. Next, choose the coefficients that make the number of atoms of each _____ on each side of the equation equal. The correctly written formula should not be changed. If you change the formula of a substance, the equation is no longer _____ . Changing a formula will indicate a _____ different than the one intended.

To balance the equation $Mg(cr) + 0_2(g) \rightarrow MgO(cr)$, first choose coefficients to make the number of atoms of each element on each side of the equation equal. You would need to place a coefficient of_____ in front of the product MgO (cr) . You would also need to place a coefficient of two in front of the reactant _____

NAME_____ DATE_____ CLASS_____

REINFORCEMENT Chapter 21

Chemical Equations

Answer the following questions with complete sentences.

1. What is a balanced chemical equation?_____

2. Use the law of conservation of mass to explain why a chemical equation must be balanced._____

Balance the following equations. If you need help, review the steps for balancing equations on page 411 of your textbook.

3. $H_2(g) + 0_2(g) \longrightarrow H_20(l)$

4. $N_2(g) + H_2(g) \longrightarrow NH_3(g)$

5. $Li(cr) + FeBr_2(aq) \longrightarrow LiBr(aq) + Fe(cr)$

6. $Al(cr) + HCl(aq) \longrightarrow AlCl_3(aq) + H_2(g)$

7. $Li(cr) + N_2(g) \longrightarrow Li_3N(cr)$