

An Introduction to Chemical Reactions and Equations
Chapters 7 (all) and 8 (section 3) with some review from Chapters 3 and 4

Next Generation Science Standards Addressed:

PS-2 (Ext)– 6aa: Students demonstrate an understanding of physical, chemical, and nuclear changes by using chemical equations and information about molar masses to predict quantitatively the masses of reactants and products in chemical reactions.

LHS Core Values

~Students will be thoughtful communicators who read, write, listen and speak effectively in preparation for careers and/or post-secondary education

~Students will be creative and practical problem solvers

~Students will be responsible users of technology and media

~Students will demonstrate continuous effort towards proficiency in all requirements for graduation

Objectives

The student will:

1. Describe the characteristics of a chemical reaction including the indications that a chemical reaction has occurred.
2. Distinguish between reactants and products.
3. Explain how a chemical equation describes what happens in a chemical reaction.
4. Distinguish between and describe the role of numerical coefficients and subscripts in chemical formulas and equations.
5. Interpret and utilize the different symbols in a chemical equation that indicate states of matter and reaction conditions.
6. Explain how a balanced chemical equation illustrates the law of conservation of matter (mass).
7. Write names for ionic, binary molecular, and hydrate compounds when given the formula of the compound.
(Review from Chapters 3 & 4)
8. Write the formulas for ionic binary molecular, hydrate compounds and the acids in figure 7-27 when given the name of the compound. (Review from Chapters 3 & 4)
9. Write and balance chemical equations.
 - A. Use the “Trial and Error” method to balance equations
 - B. Use the algebraic method to balance equations.
10. Name and describe and classify chemical reactions as one the four general types, or as a combustion and/or acid-base chemical reactions.
11. Predict the products of a chemical reaction based on the reactants and reaction type.
12. Define and use the key terms for this unit:

Chemical Equation

Reactant

Product

Law of Conservation of

Matter

Coefficient

Combination (synthesis)

Reaction

Decomposition Reaction

Combustion Reaction

Single-replacement

reaction

Double-replacement

reaction

Hydrocarbon

Acid

Base

Salt