

Name _____

Topic 2 - Lesson 3: "Modeling Chemical Reactions"

Guiding Questions: Use pgs. 90-97

- How can a model be used to identify the components of a chemical reaction?
- How can a chemical reaction be used to model the conservation of mass?

1. What is a chemical equation?

2. What 3 things does a chemical equation convey?

a. _____

b. _____

c. _____

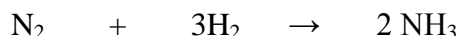
3. If there is no number behind the element in the formula, how many atoms of that element are there?

4. What is a subscript?

5. What does the arrow mean in a chemical equation?

6. What is a coefficient?

7. Use Figure 2 on Page 92: The following chemical equation represent the formation of ammonia from nitrogen and hydrogen gas.



a. Circle the product in the equation above.

b. Underline the coefficient in the equation above.

c. How many atoms of Nitrogen are in the reactant side. _____

d. Are any atoms created or destroyed in this reaction? Explain.

8. Record the name and formulas of the reactants and products of methane combustion.

9. According to the law of conservation of mass, why must a chemical equation be balanced?

10. Why are coefficients used to balance equations?

11. Because mass is conserved in a chemical reaction, chemical equations must be balanced. Use the Math Tool Box on Page 95, to match the answer to the following questions.

a. None of the atoms in balance _____

b. Oxygen atoms not balanced _____

c. Iron atoms not balanced _____

d. All the atoms balanced _____

12. What is the difference between an open and closed system?

13. A neighbor wants to use his backyard garden to conduct an investigation of how tomato plants use specific amounts of carbon dioxide and water to grow at a certain rate. Is this a good idea? Explain.

14. What are 3 general types of chemical reactions?

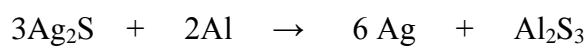
15. Explain why magnesium oxide is created in a synthesis reaction.

16. Define a decomposition reaction.

17. Write a sentence using the word decomposition.

18. What happens in a replacement reaction.

19. Aluminum (Al) and silver tarnish (Ag_2S) yield pure silver (Ag) in an aluminum sulfide solution.



a. What are the reactants and products in this reaction?

b. Is this reaction a replacement reaction? Explain.