
# Section 4.3
# Chemical Equations
# Study Notes

By the end of section 4.1 you should be able to understand the following:

- ❒ A chemical change results from the rearrangements of atoms and connections between atoms.
- ❒ When chemical changes happen, we say a chemical reaction has occurred.
- ❒ Chemical reactions are represented by word or symbol equations, with reactants on the left and products on the right. States of matter may also be written after each symbol.
- ❒ Chemical reactions obey the Law of Conservation of Mass: the mass of the reactants equals the mass of the products, and atoms are not created or destroyed.
- ❒ Chemical equations are balanced using whole number coefficients.

## NOTES

| | |
|---|---|
| What evidence might be seen after a chemical reaction has occurred? Write the word equation for a chemical reaction where sodium and hydrogen chloride react to produce hydrogen gas and sodium chloride. | 1.<br><br>2. |
| What were John Dalton's main ideas about chemical reactions? | 1.<br><br>2. |
| What major discovery did Antoine Lavoisier and his wife Marie-Anne make about chemical reactions? What is the law of conservation of mass? | 1.<br><br>2. |

**Do the Reading Check on page 205**

## NOTES

Sodium chloride (NaCl) reacts with silver nitrate ($AgNO_3$)to produce sodium nitrate ($NaNO_3$)and silver chloride (AgCl). Write the word equation, the skeleton equation, and then a balanced chemical equation.

1.

2.

3.

**Do the Reading Check on page 207**

Balance the following chemical reaction: Aluminum (Al)reacts with oxygen gas ($O_2$) to form aluminum oxide ($Al_2O_3$).

1.

Propane undergoes combustion to produce carbon dioxide gas and water. If the chemical formula for propane is $C_3H_8$, write the word, skeleton and balanced chemical equations for this reaction.

1.

2.

3.