

# CHAPTER HIGHLIGHTS

## Chemical Names and Formulas

### Vocabulary

monatomic ion  
binary compound  
nomenclature  
oxyanion  
salt

- A positive monatomic ion is identified simply by the name of the appropriate element. A negative monatomic ion is named by dropping parts of the ending of the element's name and adding *-ide* to the root.
- The charge of each ion in an ionic compound may be used to determine the simplest chemical formula for the compound.
- Binary compounds are composed of two elements.
- Binary ionic compounds are named by combining the names of the positive and negative ions.
- The old system of naming binary molecular compounds uses prefixes. The new system, known as the *Stock system*, uses oxidation numbers.

## Oxidation Numbers

### Vocabulary

oxidation number  
oxidation state

- Oxidation numbers are useful in naming compounds, in writing formulas, and in balancing chemical equations.
- Compounds containing elements that have more than one oxidation state are named by using the Stock system.
- Stock-system names and prefix-system names are used interchangeably for many molecular compounds.
- Oxidation numbers of each element in a compound may be used to determine the compound's simplest chemical formula.
- By knowing oxidation numbers, we can name compounds without knowing whether they are ionic or molecular.

## Using Chemical Formulas

### Vocabulary

formula mass  
percentage composition

- Formula mass, molar mass, and percentage composition can be calculated from the chemical formula for a compound.
- The percentage composition of a compound is the percentage by mass of each element in the compound.
- Molar mass is used as a conversion factor between amount in moles and mass in grams of a given compound or element.

## Determining Chemical Formulas

### Vocabulary

empirical formula

- An empirical formula shows the simplest whole-number ratio of atoms in a given compound.
- Empirical formulas indicate how many atoms of each element are combined in the simplest unit of a chemical compound.
- A molecular formula can be found from the empirical formula if the molar mass is measured.