

## Instructional Objectives

### 4. Chemical Bonding: The Ionic Bond

#### 4.1 Chemical Bonds

Define chemical bond.

Explain why most atoms form chemical bonds.

Describe ionic bonding.

List and compare the distinctive properties of ionic and molecular compounds.

#### 4.2 Valence Electrons and Lewis Symbols

Draw Lewis symbols for representative elements.

Predict from the Lewis symbols the charge ions formed.

#### 4.3 The Octet Rule

State the octet rule and describe the ways an atom can achieve an octet.

Use the octet rule to predict the charge of common cations and anions.

#### 4.4 The Ionic Bond Model

Describe the ionic solids as collection of cations and anions held by electro-static forces.

#### 4.5 The Sign and Magnitude of Ionic Change

Obtain the charge of representative elements using periodic table/Lewis symbols

#### 4.6 Ionic Compound Formation

Describe formation of an ionic compound through electron transfer from metals to non-metal elements.

#### 4.7 Chemical Formulas for Ionic Compounds

Give the names from the formulas of ions

Write the formulas of a ionic compounds when provided with the name.

#### 4.8 The Structure of Ionic Compounds

Recognize the cations and anions in an ionic compound.

#### 4.9 Recognizing and Naming Binary Ionic Compounds

Name the ionic compound given the formula.

#### Chemistry at a Glance: Ionic Bonds and Ionic Compounds

#### 4.10 Polyatomic Ions

Identify the formula, charge and names of common polyatomic ions.

#### 4.11 Chemical Formulas and Names for Ionic Compounds Containing Polyatomic Ions

**Chemistry at a Glance:** Nomenclature of Ionic Compounds

**Chemical Connections:** Fresh Water, Seawater, Hard Water, and Soft Water: A Matter of Ions; Tooth Enamel: A Combination of Monoatomic and Polyatomic Ions