

# Unit 07: Chapter 8: Covalent Bonding

Content Area: **Science**  
Course(s): **Chemistry Honors, Chemistry AH**  
Time Period: **Generic Time Period**  
Length: **3 weeks**  
Status: **Published**

## Standards

---

PS1-1

PS1-2

PS1-3

PS2-4

PS2-6

SCI.9-12.HS-PS1-1	Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.
SCI.9-12.HS-PS1-2	Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
SCI.9-12.HS-PS2-6	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
SCI.9-12.HS-PS2-4	Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
SCI.9-12.HS-PS1-3	Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.

## Goals/Objectives

---

How do so few elements make so many compounds? And why?

What is the role of electrons in the formation and properties of compounds?

## Content

---

The Octet Rule

Covalent v. Ionic bonds

Molecular v. Ionic substances

Intermolecular Bonding

## Molecular Geometry

### **Skills**

---

Describe the transfer or sharing of electrons to form compounds.

Contrast the properties of molecular and ionic substances.

Interparticle and intraparticle forces

### **Learning Activities/Instructional Strategies**

---

- Activity: Molecular Geometry with Models
- Chapter 8 Packet
- POGIL Polarity

### **Assessment of Learning**

---

- chapter test
- discussion
- homework
- lab report

### **Differentiation**

---

- Alternative Assessments
- Choice of activities
- Choice of books
- Flexible grouping
- Guided reading
- Homework options (describe)
- Independent research and projects
- Leveled rubrics
- Modified materials
- Multiple texts
- Multi-sensory

- Personal agendas
- Pre-teach
- Re-teach
- Stations/Centers

## **21st Century**

---

### **21st Century Themes**

---

- Business, Financial, Economic Literacy
- Civic Literacy
- Global Perspectives
- Health Literacy

### **21st Century Skills**

---

- Communication and Collaboration
- Creativity and Innovation
- Critical Thinking and Problem Solving
- Information Literacy
- Life and Career Skills
- Media Literacy

### **Interdisciplinary Connections**

---

- Art
- Business
- Computers
- Engineering
- English
- Health
- Math
- Music
- Physical Education
- Science
- Social Studies
- World Languages

## Integration of Technology

---

- Calculators
- Computer Lab/Laptops
- DVDs/CDs/Videos/TV
- Graphing Calculators
- Handhelds
- Internet Resources
- iPads
- Overhead Transparencies
- PowerPoint
- SMART Board

TECH.8.1.12.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
TECH.8.1.12.C	Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
TECH.8.1.12.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.2.12.C	Design: The design process is a systematic approach to solving problems.
TECH.8.2.12.E	Computational Thinking: Programming: Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.