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

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
- Multi-sensory
- Multiple texts

- 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
1ECH.6.1.12.B	Creativity and innovation. Students demonstrate creative trinking, 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.