Unit 06: Chapter 7: Ionic and Metallic Bonding

Content Area: Science

Course(s): Chemistry Honors, Chemistry AH

Time Period: Generic Time Period

Length: **1.5 weeks** Status: **Published**

Standards

PS1-	

PS1-2

PS1-3

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-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-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.

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.

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

Metallic Bonding

Skills

Describe the transfer or sharing of electrons to form compounds.

Contrast the properties of molecular and ionic substances.

Learning Activities/Instructional Strategies

- Chapter 7 Packet
- POGIL Ion Formation
- · POGIL What's in a name?

Assessment of Learning

- chapter test
- discussion
- homewrok
- 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

- Computers
- Engineering
- Math
- Science

Integration of Technology

- Calculators
- Computer Lab/Laptops
- Digital Scales & Meters
- Graphing Calculators
- Internet Resources
- iPads
- 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.8.1.12.F Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

TECH.8.2.12.C Design: The design process is a systematic approach to solving problems.

TECH.8.2.12.D Abilities for a Technological World: The designed world is the product of a design process that provides the means to convert resources into products and systems.

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.