

# 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

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PS1-1

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

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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

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The octet rule

Covalent v. Ionic bonds

Molecular v. Ionic substances

Metallic Bonding

## Skills

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Describe the transfer or sharing of electrons to form compounds.

Contrast the properties of molecular and ionic substances.

## **Learning Activities/Instructional Strategies**

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

## **Assessment of Learning**

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- chapter test
- discussion
- homework
- lab report

## **Differentiation**

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- 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**

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## 21st Century Themes

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

## 21st Century Skills

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

## Interdisciplinary Connections

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- Computers
- Engineering
- Math
- Science

## Integration of Technology

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- 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.