

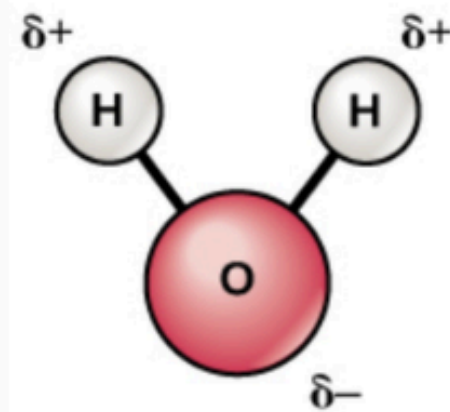
Complete 5E Lesson Bundle

- Lessons
- Activities
- Assessment

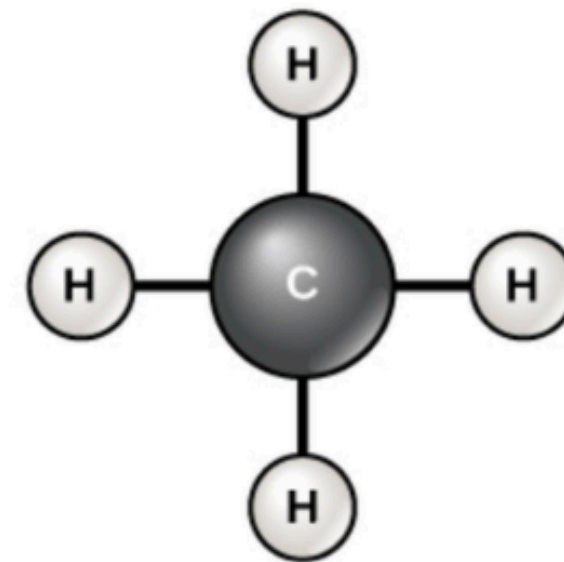
SCROLL
to take a look inside!

CHEMICAL BONDING, COMPOUNDS, AND INTERMOLECULAR FORCES 5E LESSON BUNDLE

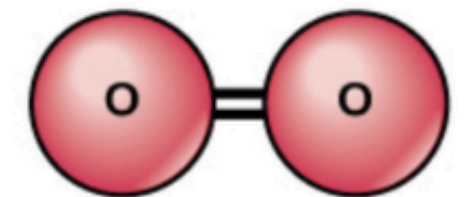
Polar covalent bond



Nonpolar covalent bond



Nonpolar covalent double bond



- Lessons
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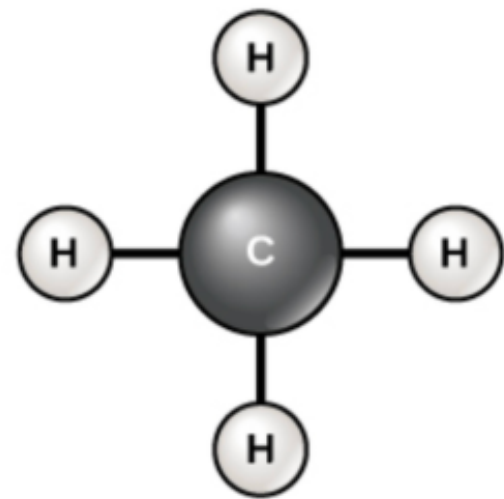
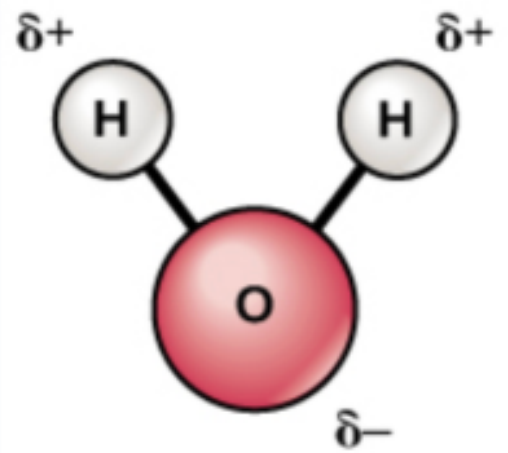
Designed for Grade 10-12



Teach With
Fergy

BY THE END OF THIS BUNDLE, STUDENTS WILL:

- ✓ **Understand Chemical Bonding** – Learn why atoms form bonds and how valence electrons, ions, and the octet rule help explain chemical bonding.
- ✓ **Compare Types of Chemical Bonds** – Study ionic, covalent, polar covalent, nonpolar covalent, and metallic bonds and how they differ from one another.
- ✓ **Explore Compounds and Bonding Models** – Discover how molecular and ionic compounds form and how chemical formulas, compound names, and Lewis structures can be used to represent bonding.
- ✓ **Analyze Polarity and Intermolecular Forces** – Investigate molecular polarity and intermolecular forces, including London dispersion forces, dipole-dipole forces, and hydrogen bonds.
- ✓ **Apply Knowledge Through Inquiry and Practice** – Engage in video questions, a digital scavenger hunt, lessons, cipher puzzles, digital notebook activities, and lab stations to reinforce and evaluate understanding.



The 5 E's



✓ **Engagement Phase** - Creates interest and excitement for your students by asking questions and probing their initial conceptions.

✓ **Exploration Phase** - Students use and develop creative thinking skills, make observations, record results, and make connections through an investigation

✓ **Explanation Phase** - This is the instructional phase where concepts are presented to the students in a clear and applicable way

✓ **Elaborate Phase** - This phase involves the students completing an activity or assignment that forces them to expand their thinking and knowledge of the topic. They will propose solutions and extend their learning to new situations

✓ **Evaluate Phase** - Your students will demonstrate their understanding and evaluate their own progress through an assessment

Intermolecular Forces

- The Four Types of Intermolecular Forces
- Dispersion Forces
- Molecular Dipole
- Dipole-Dipole Forces
- Impact of Intermolecular Forces on Melting and Boiling points
- Hydrogen Bonds
- Bonding Type Overview

TWF

Molecular Compounds Cipher Puzzle

Both Google and Classroom Ready

- Students solve problems to discover a secret message
- NO PREP, NO MARKING, NO MATERIALS

Types of Bonds & Intermolecular Forces

NO PREP, M

LAB STATION ACTIVITY

7 Print-Ready Stations | JUST PRINT & GO

Naming Chemical Compounds and Chemical Reactions

Digital Interactive Notebook

Chapter 1 – Lewis Structures
Chapter 2 – Ions
Chapter 3 – Ionic Compounds
Chapter 4 – Polyatomic Compounds
Chapter 5 – Molecular Compounds

100% Digital and Interactive

Build

Chapter 6 – Chemical Reactions
Chapter 7 – Balancing Chemical Equations
Chapter 8 – Types of Chemical Reactions

MY 5E LESSON BUNDLES

SOLVE...

- ★ **Prep-time crunch** — ready-to-use slides, stations, projects, and graphing cut planning to near zero.
- ★ **Engagement** — hands-on stations + hands-on activities keep students active and curious.
- ★ **Unit flow** — 5E structure (Engage → Evaluate) gives a coherent, day-by-day sequence.
- ★ **Assessment** — activities, assignments, and auto-graded quizzes, provide evidence of learning that is quick to mark.
- ★ **Differentiation** — multiple modalities + scaffolded activities and lessons support mixed abilities.



5 Engaging Lessons

Types of Chemical Bonds

- Forces of Attraction
- Ionic vs. Covalent Bonds
- Ionic Bonds Overview
- Covalent Bonds
- Single, Double and Triple Bonds
- Polar Covalent Bonds
- Metallic Bonds

This digital presentation includes both Google and Office resources and is Google Classroom Ready

Intermolecular Forces

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- Bonding Type Overview

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Molecular Compounds

- Ionic compounds review
- examples
- Molecular compounds
- Electron sharing
- Single, Double, Triple bonds
- Naming compounds
- Writing formulas
- Diatomic gases

This digital presentation includes both Google and Office resources and is Google Classroom Ready

Ionic Compounds

- Ions
- Ionic Compounds
- Drawing Ionic Compounds
- Examples
- Naming Ionic Compounds
- Ionic Compound Formulas
- The Criss-Cross Rule
- Multivalent Compounds
- Properties of Ionic Compounds

This digital presentation includes both Google and Office resources and is Google Classroom Ready

Lewis Structures

- Valence Electrons
- Octet Rule
- Ionic Bonding
- Covalent Bonding
- Polyatomic Ions
- Drawing Lewis Structures
- Determining Charge

This digital presentation includes both Google and Office resources and is Google Classroom Ready

Google Access

Thank you for your purchase. Clicking the link below will automatically create a copy of the Google resources and place them into your Google Drive. You'll find the folder inside the "Shared with me" section on the left side of your Drive.

Important: Before you click, make sure you're signed in to the Google account you'd like the resources placed into. If the resources are added to the wrong account, simply sign out and then into the correct one and repeat the process.

[Click here to place a copy of your resources into your Google account](#)

TWTF

Ionic Compounds - Exit Ticket

* Indicates required question

In an ionic compound, a metal _____ a(n) electron(s) and becomes _____. * 1 point
and a nonmetal _____ a(n) electron(s) and becomes _____.

☐ loses, negative, gains, positive

☐ loses, positive, gains, negative

☐ gains, negative, loses, positive

☐ gains, positive, loses, negative

Next Page 1 of 4 Clear form

Includes student notes in easy-to-fill-in formats.

Dipole-dipole Forces

- Attraction between dipoles due to simultaneous attraction between a dipole and its surrounding dipoles
- _____

Dipole-dipole Forces

- Attraction between dipoles due to simultaneous attraction between a dipole and its surrounding dipoles
- The strength of the dipole-dipole force is dependent on polarity of the molecule → the more polar, the stronger the force

Student and Teacher versions of the presentations

4-Question, Auto-Graded Exit Ticket based on information from the lesson.

Ionic Compounds - Student Lesson Outline

Ions

- Metals (typically on the left of the periodic table) lose their electrons and become "+"
 - Less negative
- Non-Metals (typically on the right of the periodic table) gain electrons and become "-"
 - Becomes more negative
- What is the total charge if you have X²⁺ and Y¹⁻

Ionic Compounds

- Metal and a nonmetal combine to form "Ionic Compounds"
- The metal atom loses electrons to form positive ions
- The nonmetal gains the electrons to form negative ions
- The two ions join together
- _____
- _____

Ionic Compounds

- Ionic compounds are formed when a metal gives one or more of its electrons to a nonmetal
- When all of the electrons are gone, the metal's inner orbit of electrons is full
 - This makes the metal stable
- _____
- _____

Ionic Compounds

- The non-metal receives one or more electrons to fill its outer shell and become stable
- If we draw the Lewis Structure for a nonmetal we include the full valence orbit, brackets and the charge
- Having gained two electrons, the oxygen is now negative
- _____
- _____

Ionic Compounds

- This particular example is simple because the calcium and oxygen want to exchange the same number of electrons
- What would happen if they wanted to exchange different numbers of electrons?

Lithium and Oxygen

1. First draw the lewis structures of the atoms on their own.
2. Now use an arrow to show the electron transferring from the Lithium atom to the oxygen atom
3. You can see that the oxygen atom still does not have a complete outer shell. Clearly another lithium atom is required to complete the compound.

Lithium Oxide Continued

- _____
- _____
- The final Lewis structure is illustrated here.
- _____
- _____

Covalent and Ionic Bonding Overview

Videos embedded directly into the slides. One-click access.

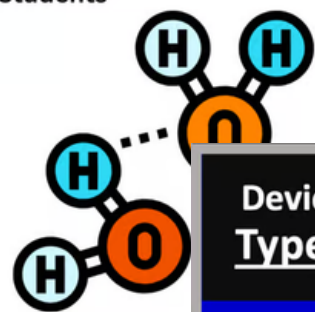
18 Engaging Activities

- Daily Teaching Timeline and Answer Keys
- 4 Interactive Lessons in Print & Digital
- 1 Digital Scavenger Hunt Activity
- 2 Lab Station Activities
- 3 Cipher Puzzle Worksheets
- 3 Video Worksheets + 5 Digital INB Activities

Crash Course Chemistry #22: Types of Chemical Bonds

- ✓ Classroom Ready - Just Print and Go!
- ✓ Active Engagement - Keep Students' Attention
- ✓ Direct Video Link Included

WATCH VIDEO



Includes Student and Answer Key

Device-Based Scavenger Hunt Types of Chemical Bonds



- Includes
- 5 Unique Locations
 - Online form submission
 - Answer Key

Works on all smartphones, tablets, Chromebooks, and laptops

Molecular Compounds Cipher Puzzle

- Students solve problems to discover a secret message
- NO PREP, NO MARKING, NO MATERIALS

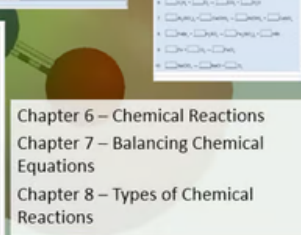
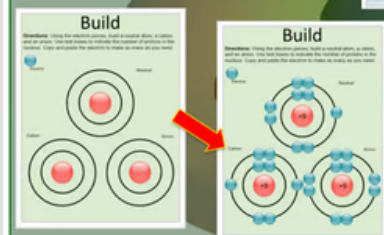


NO PREP, MATERIALS, OR MARKING

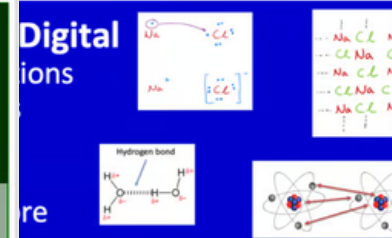
Naming Chemical Compounds and Chemical Reactions Digital Interactive Notebook

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Chapter 5 – Molecular Compounds

100% Digital and Interactive



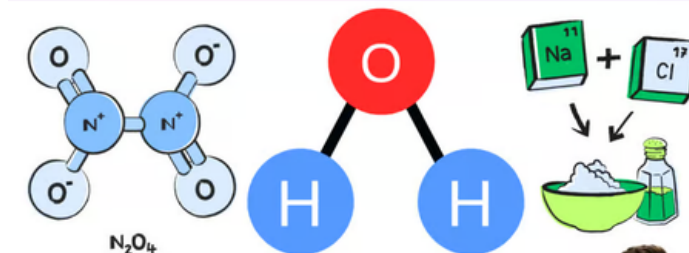
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TYPES OF BONDS & INTERMOLECULAR FORCES

LAB STATION ACTIVITY

7 Print-Ready Stations | JUST PRINT & GO



Over 215 Units Sold!



Daily Teaching Schedule

Day-by-day teaching schedule so you'll know what to teach and when each day.



Chemical Bonding, Compounds, and Intermolecular Forces - SE Lesson

Ongoing Lesson 6-9 hours
Lesson Objective:
Students will learn about the following:

- Chemical bonding and why atoms form bonds
- Valence electrons and the octet rule
- Ionic bonds and the formation of ions
- Covalent, polar covalent, and nonpolar covalent bonds
- Metallic bonds
- Molecular and ionic compounds
- Chemical formulas and compound naming
- Lewis structures and bonding models
- Molecular polarity
- Intermolecular forces, including London dispersion forces, dipole-dipole bonds
- How bonding and intermolecular forces affect the properties of substances

Possible Student Misconceptions:

- Atoms form bonds because they “want” to be happy rather than because particles and changes in energy.
- Ionic compounds are individual molecules instead of repeating crystal lattices.
- All covalent bonds share electrons equally.
- A polar bond and a polar molecule are the same thing.
- Intermolecular forces are the same as chemical bonds inside a compound.
- Hydrogen bonds are the same as covalent bonds involving hydrogen.
- Metal atoms do not bond because they are not ionic or covalent compounds.
- Lewis structures show the exact shape and movement of atoms in a molecule.
- Stronger intermolecular forces always mean a substance is harder, so it is harder to break.
- Compound names and formulas can be guessed without using ions, charges, or patterns.

Materials:

- 1 device (smartphone, Chromebook, laptop, tablet, or computer) per student
- A means of projecting a presentation and internet access
- Materials needed for the chemical bonding and intermolecular forces lab

Teacher Notes:

- All videos can be accessed directly from the presentation. To retrieve while in slideshow mode and it will automatically open for you. If it does not, click on the image and click Edit Hyperlink or something similar.
- This SE lesson helps students connect bonding, compound formation, intermolecular forces instead of treating each concept as a separate topic.
- The main focus should be on how electrons, ions, charges, and molecular structure and properties of substances.

Chemical Bonding, Compounds, and Intermolecular Forces - SE Lesson

Engagement Phase - Video Worksheet

- Your students will watch the included video worksheet - *Crash Course Chemical Bonds*.
- You may also use *Crash Course CHEMISTRY #23: Polar and Nonpolar Bonds* and *CHEMISTRY #24: Bonding Models and Lewis Structures* as optional background before the main lesson.

Teacher Notes:

- The students will begin by watching a short video about chemical bonding. Included questions that come directly from the video. These questions begin discussions.
- This is an excellent way to introduce the idea that atoms can bond and bonding affects the properties of substances.
- Use this phase to ask students why atoms bond, how ionic and covalent bonds are different, and why some substances have very different melting points, boiling points, and solubility.
- Once the video is done, review the questions with the student.

Duration: 20-45 minutes
Teacher Role - Facilitate learning and guide student understanding

Goals

- Connect student's experiences
- Create interest
- Ask questions
- Understand the objectives of the lesson
- Probe students' initial ideas about chemical bonding

Exploration Phase - Device-Based

Your students will complete *Types of Chemical Bonds* and *Intermolecular Forces* digital notebook pages.

Teacher Notes:

- Students will work individually or in small groups.
- This scavenger hunt helps students connect bonding, compound formation, intermolecular forces, and molecular structure.
- Students should focus on how bonding, compound formation, intermolecular forces are different rather than memorizing facts.
- This activity works well before the full explanation of bonding and intermolecular forces so they can build on their knowledge and vocabulary they can build on.

Duration: 1 hour
Teacher Role - Facilitate learning and keep students focused

Goal

- Students use their newly obtained knowledge to extend their learning
- Students compare different types of chemical bonding and intermolecular forces to compounds
- Students apply their understanding of chemical bonding and intermolecular forces to explain their observations

Explanation Phase - Lessons

- Complete the lesson *Types of Chemical Bonds Lesson*
- Complete the lesson *Intermolecular Forces Lesson*
- The lesson can be supported with *Ionic Compounds Lesson*, *Molecular Compounds Lesson*, and *Chemical Reactions Lesson* as needed.

Supplemental Activities: Assign any of the following to help students understand:

- *Ionic and Molecular Compounds Cipher Puzzle*
- *Ionic Compounds Cipher Puzzle*
- *Molecular Compounds Cipher Puzzle*

Teacher Notes:

- All videos can be accessed directly from the presentation. To retrieve while in slideshow mode and it will automatically open for you. If it does not, click on the image and select Edit Hyperlink or something similar.
- The main focus of this phase should be the connection between electron configuration, molecular polarity, and intermolecular forces.
- Students should understand that chemical bonds hold atoms or ions together while intermolecular forces are attractions between particles or molecules.
- If students need more practice with formulas and naming, use the ionic compounds, or nomenclature lessons before moving into the extension activities.
- Encourage students to connect bonding and intermolecular forces to melting point, boiling point, solubility, and state at room temperature.

Duration: 2-4 hour(s)
Teacher Role - Explain the concepts by presenting the material found in the presentation

Goals

- Students develop understanding of the content
- Observations and experiences are discussed and critiqued
- Students develop vocabulary
- Students are able to connect the content presented to previous experiences
- Students explain how chemical bonds and intermolecular forces help substances

Elaborate Phase – Digital Interactive Notebook Pages

Your students will complete one or more of the following digital notebook or activities:

- *Lewis Structures - Digital Interactive Notebook Pages*
- *Ionic Compounds - Digital Interactive Notebook Pages*
- *Molecular Compounds - Digital Interactive Notebook Pages*
- *Polyatomic Compounds - Digital Interactive Notebook Pages*
- *Naming Chemical Compounds and Chemical Reactions - Digital Interactive Notebook Pages*

Teacher Notes:

- Students will work individually or in small groups.
- Choose the activities that best fit the level of your students and the amount of formula writing practice they need.
- These activities work well after students have learned about ionic bonds, covalent bonds, and compound formation.
- Students should focus on applying bonding ideas to Lewis structures, form molecular or ionic compound examples.
- Teachers can assign one, two, or all of the digital notebook sections depending on student needs.
- Encourage students to use bonding evidence, charges, prefixes, or Lewis structures to explain their answers rather than guessing from memorized patterns.

Duration: 1-3 hours
Teacher Role - Facilitate learning and keep students focused

Goal

- Students use their newly obtained knowledge to extend their learning to form names, and bonding models
- Students connect chemical bonding to molecular and ionic compounds
- Students apply bonding patterns to Lewis structures, chemical formulas, and naming
- Students use evidence from bonding and particle structure to explain their observations

Evaluate Phase - Lab Station Activity

In groups of 2-3, have your students complete *Types of Bonds & Intermolecular Forces Lab Station Activity*. Once they're done, they will submit their passport to you.

You may also use *Molecular and Ionic Compounds Lab Station Activity* as an additional or alternate evaluation activity if you want students to focus more heavily on compound formation, formulas, and naming.

Teacher Notes:

- The complete instructions for the station activity can be found in the START HERE - Instructions.
- Students should focus on how types of chemical bonds and intermolecular forces are connected to the structure and properties of substances.
- Encourage students to explain the difference between attractions within compounds and attractions between particles or molecules.
- Use the completed passport to evaluate whether students can apply bonding concepts, compare different types of attractions, and explain patterns using evidence rather than only naming vocabulary terms.

Duration: 1-2 hours
Teacher Role - Facilitate learning and guide student understanding

Goals

- Students receive real experience with the topic
- Students use and develop creative thinking skills
- Students make observations, record results, and make connections
- Students explain the difference between chemical bonds and intermolecular forces
- Students demonstrate their understanding of chemical bonding, compounds, and intermolecular forces and evaluate their own progress

Each Phase is Clearly Described