

## Naming Covalent Bonds Worksheet

### Naming Covalent Bonds Worksheet

Disclaimer: *The naming covalent bonds worksheet was generated with the help of StudyBlaze AI. Please be aware that AI can make mistakes. Please consult your teacher if you're unsure about your solution or think there might have been a mistake. Or reach out directly to the StudyBlaze team at [max@studyblaze.io](mailto:max@studyblaze.io).*

### Part 1: Foundational Knowledge

---

#### Which of the following best describes a covalent bond?

*Hint: Think about how atoms interact with each other.*

- A) Transfer of electrons between atoms
- B) Sharing of electron pairs between atoms
- C) Attraction between oppositely charged ions
- D) Formation of a lattice structure

#### Which of the following best describes a covalent bond?

- A) Transfer of electrons between atoms
- B) Sharing of electron pairs between atoms
- C) Attraction between oppositely charged ions
- D) Formation of a lattice structure

#### Which of the following best describes a covalent bond?

- A) Transfer of electrons between atoms
- B) Sharing of electron pairs between atoms
- C) Attraction between oppositely charged ions
- D) Formation of a lattice structure

#### Which of the following are types of covalent bonds? (Select all that apply)

*Hint: Consider the different ways atoms can bond.*

- A) Single bond
- B) Double bond
- C) Ionic bond

D) Triple bond

**Which of the following are types of covalent bonds? (Select all that apply)**

- A) Single bond
- B) Double bond
- C) Ionic bond
- D) Triple bond

**Which of the following are types of covalent bonds? (Select all that apply)**

- A) Single bond
- B) Double bond
- C) Ionic bond
- D) Triple bond

**Explain the difference between a single covalent bond and a double covalent bond.**

*Hint: Consider the number of electron pairs shared.*

**Explain the difference between a single covalent bond and a double covalent bond.**

**Explain the difference between a single covalent bond and a double covalent bond.**

**List the prefixes used for naming covalent compounds for the numbers 1 to 4.**

*Hint: Think about the Greek prefixes.*

1. 1

2. 2

3. 3

4. 4

**What is the suffix used for the second element in a binary covalent compound?**

*Hint: Consider common suffixes used in chemical nomenclature.*

- A) -ate
- B) -ide
- C) -ite
- D) -ous

**What is the suffix used for the second element in a binary covalent compound?**

- A) -ate
- B) -ide
- C) -ite
- D) -ous

**What is the suffix used for the second element in a binary covalent compound?**

- A) -ate
- B) -ide
- C) -ite
- D) -ous

## Part 2: Understanding

---

**Which prefix is typically omitted when naming the first element in a covalent compound?**

*Hint: Think about the prefix for one.*

- A) Mono-
- B) Di-
- C) Tri-
- D) Tetra-

**Which prefix is typically omitted when naming the first element in a covalent compound?**

- A) Mono-
- B) Di-
- C) Tri-
- D) Tetra-

**Which prefix is typically omitted when naming the first element in a covalent compound?**

- A) Mono-
- B) Di-
- C) Tri-
- D) Tetra-

**Which of the following compounds are correctly named according to covalent naming rules? (Select all that apply)**

*Hint: Consider the rules for naming covalent compounds.*

- A) CO as Carbon monoxide
- B) N<sub>2</sub>O as Dinitrogen oxide
- C) SF<sub>6</sub> as Sulfur hexafluoride
- D) H<sub>2</sub>O as Dihydrogen oxide

Which of the following compounds are correctly named according to covalent naming rules? (Select all that apply)

- A) CO as Carbon monoxide
- B) N<sub>2</sub>O as Dinitrogen oxide
- C) SF<sub>6</sub> as Sulfur hexafluoride
- D) H<sub>2</sub>O as Dihydrogen oxide

Which of the following compounds are correctly named according to covalent naming rules? (Select all that apply)

- A) CO as Carbon monoxide
- B) N<sub>2</sub>O as Dinitrogen oxide
- C) SF<sub>6</sub> as Sulfur hexafluoride
- D) H<sub>2</sub>O as Dihydrogen oxide

Describe the general rule for naming the second element in a binary covalent compound.

Describe the general rule for naming the second element in a binary covalent compound.

*Hint: Think about the suffix and prefix rules.*

Describe the general rule for naming the second element in a binary covalent compound.

### Part 3: Application and Analysis

---

**What is the correct name for the compound  $\text{PCl}_3$ ?**

- A) Phosphorus chloride
- B) Phosphorus trichloride
- C) Phosphor chloride
- D) Phosphor trichloride

**What is the correct name for the compound  $\text{PCl}_3$ ?**

*Hint: Consider the number of chlorine atoms in the compound.*

- A) Phosphorus chloride
- B) Phosphorus trichloride
- C) Phosphor chloride
- D) Phosphor trichloride

**What is the correct name for the compound  $\text{PCl}_3$ ?**

- A) Phosphorus chloride
- B) Phosphorus trichloride
- C) Phosphor chloride
- D) Phosphor trichloride

**Identify the correct formulas for the following names: (Select all that apply)**

- A) Dinitrogen tetroxide:  $\text{N}_2\text{O}_4$
- B) Carbon tetrachloride:  $\text{CCl}_4$
- C) Sulfur dioxide:  $\text{SO}_3$
- D) Phosphorus pentabromide:  $\text{PBr}_5$

**Identify the correct formulas for the following names: (Select all that apply)**

*Hint: Consider the chemical formulas that correspond to the names.*

- A) Dinitrogen tetroxide:  $N_2O_4$
- B) Carbon tetrachloride:  $CCl_4$
- C) Sulfur dioxide:  $SO_3$
- D) Phosphorus pentabromide:  $PBr_5$

**Identify the correct formulas for the following names: (Select all that apply)**

- A) Dinitrogen tetroxide:  $N_2O_4$
- B) Carbon tetrachloride:  $CCl_4$
- C) Sulfur dioxide:  $SO_3$
- D) Phosphorus pentabromide:  $PBr_5$

**Given the compound name "Dihydrogen monoxide," write its chemical formula.**

*Hint: Consider the number of hydrogen and oxygen atoms.*

**Given the compound name "Dihydrogen monoxide," write its chemical formula.**

**Given the compound name "Dihydrogen monoxide," write its chemical formula.**

**Analyze the following compound name: "Tetraphosphorus decoxide." How many oxygen atoms are present in the compound?**

*Hint: Consider the prefix for oxygen in the name.*

- A) 4
- B) 8
- C) 10
- D) 12

**Analyze the following compound name: "Tetraphosphorus decoxide." How many oxygen atoms are present in the compound?**

- A) 4
- B) 8
- C) 10
- D) 12

**Analyze the following compound name: "Tetraphosphorus decoxide." How many oxygen atoms are present in the compound?**

- A) 4
- B) 8
- C) 10
- D) 12

**Which of the following statements are true about covalent compounds? (Select all that apply)**

*Hint: Consider the properties and characteristics of covalent compounds.*

- A) They are typically formed between metals and non-metals.
- B) They involve the sharing of electrons.
- C) They can form molecules with multiple bonds.
- D) They are generally good conductors of electricity.



**Which of the following statements are true about covalent compounds? (Select all that apply)**

- A) They are typically formed between metals and non-metals.
- B) They involve the sharing of electrons.
- C) They can form molecules with multiple bonds.
- D) They are generally good conductors of electricity.

**Which of the following statements are true about covalent compounds? (Select all that apply)**

- A) They are typically formed between metals and non-metals.
- B) They involve the sharing of electrons.
- C) They can form molecules with multiple bonds.
- D) They are generally good conductors of electricity.

**Compare and contrast the naming conventions of ionic and covalent compounds.**

*Hint: Think about the differences in how these compounds are named.*

**Compare and contrast the naming conventions of ionic and covalent compounds.**

**Compare and contrast the naming conventions of ionic and covalent compounds.**

## Part 4: Evaluation and Creation

---

**Evaluate the following statement: "The compound  $\text{CO}_2$  is named carbon dioxide because it contains two oxygen atoms." Is this statement:**

*Hint: Consider the accuracy of the statement.*

- A) True
- B) False
- C) Not applicable
- D) Uncertain

**Evaluate the following statement: "The compound  $\text{CO}_2$  is named carbon dioxide because it contains two oxygen atoms." Is this statement:**

- A) True
- B) False
- C)
- D)

**Which of the following compounds would you expect to have a higher boiling point based on their molecular structure? (Select all that apply)**

*Hint: Consider the intermolecular forces present in these compounds.*

- A)  $\text{H}_2\text{O}$
- B)  $\text{CO}_2$
- C)  $\text{CH}_4$
- D)  $\text{NH}_3$

**Which of the following compounds would you expect to have a higher boiling point based on their molecular structure? (Select all that apply)**

- A)  $\text{H}_2\text{O}$

- B)  $\text{CO}_2$
- C)  $\text{CH}_4$
- D)  $\text{NH}_3$

Which of the following compounds would you expect to have a higher boiling point based on their molecular structure? (Select all that apply)

- A)  $\text{H}_2\text{O}$
- B)  $\text{CO}_2$
- C)  $\text{CH}_4$
- D)  $\text{NH}_3$

Create a name for a hypothetical covalent compound composed of 3 phosphorus atoms and 5 oxygen atoms. Explain your naming process.

*Hint: Think about the prefixes and the elements involved.*

Create a name for a hypothetical covalent compound composed of 3 phosphorus atoms and 5 oxygen atoms. Explain your naming process.

Create a name for a hypothetical covalent compound composed of 3 phosphorus atoms and 5 oxygen atoms. Explain your naming process.

