Covalent Naming Worksheet

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Part 1: Building a Foundation

Which of the following is the correct prefix for indicating two atoms in a covalent compound?

Hint: Think about the prefixes used in chemistry.

- ◯ Mono-
- ◯ Di-
- ◯ Tri-
- ◯ Tetram-

Select all prefixes that are used to indicate the number of atoms in covalent compounds.

Hint: Consider common prefixes in chemical nomenclature.

- ☐ Penta-
- ☐ Hexa-
- ☐ Octa-
- ☐ Nona-

Explain why the prefix 'mono-' is often omitted for the first element in a covalent compound name.

Hint: Think about the conventions in chemical naming.

List the names of the following covalent compounds: CO_2, H_2O, NH_3.

Hint: Use the appropriate prefixes and suffixes for naming.

1. CO_2

2. H_2O

3. NH_3

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

Hint: Consider the naming conventions for the second element.

- ◯ -ate
- ◯ -ide
- ◯ -ite
- ◯ -ous

Part 2: Understanding and Interpretation

Which of the following compounds is named correctly?

Hint: Review the naming conventions for covalent compounds.

- ◯ Dinitrogen monoxide
- ◯ Nitrogen oxide
- ◯ Nitrogen dioxide
- ◯ Nitrogen trioxide

Which of the following statements about covalent compounds are true?

Hint: Consider the properties and characteristics of covalent compounds.

- ☐ They are formed by sharing electrons.
- ☐ They are typically formed between metals and non-metals.
- ☐ They use prefixes to indicate the number of atoms.
- ☐ They are named with the more electronegative element first.

Describe the process of naming a covalent compound with an example.

Hint: Think about the steps involved in the naming process.

Part 3: Application and Analysis

What is the correct name for the compound SF6?

Hint: Consider the naming conventions for sulfur and fluorine.

- ◯ Sulfur hexafluoride
- ◯ Sulfur fluoride
- ◯ Hexasulfur fluoride
- ◯ Sulfur heptafluoride

Identify the correct names for the following compounds:

Hint: Review the naming conventions for each compound.

- ☐ PCl_5 - Phosphorus pentachloride
- ☐ N_2O_4 - Dinitrogen tetroxide
- ☐ SO_3 - Sulfur trioxide
- ☐ CCl_4 - Carbon tetrachloride

Given the compound formula C_2H_6, provide its systematic name and explain your reasoning.

Hint: Consider the structure and composition of the compound.

Which of the following pairs of elements is most likely to form a covalent compound?

Hint: Think about the types of elements involved.

- ◯ Sodium and Chlorine
- ◯ Hydrogen and Oxygen
- ◯ Calcium and Oxygen
- ◯ Magnesium and Sulfur

Analyze the following statements and select those that correctly describe covalent compounds:

Hint: Consider the properties and characteristics of covalent compounds.

- ☐ They have high melting and boiling points.
- ☐ They are typically poor conductors of electricity.
- ☐ They are usually soluble in water.
- ☐ They can exist as gases, liquids, or solids at room temperature.

Analyze the naming of the compound P4O10 and explain any discrepancies with the standard naming conventions.

Hint: Consider the structure and composition of the compound.

Part 4: Evaluation and Creation

Which of the following compounds would you expect to have the strongest covalent bonds?

Hint: Consider the bond strength in different diatomic molecules.

- ◯ H2
- ◯ O2
- ◯ N2
- ◯ F2

Evaluate the following compounds and select those that are named correctly:

Hint: Review the naming conventions for each compound.

- ☐ CO - Carbon monoxide
- ☐ H2S - Dihydrogen sulfide
- ☐ NO2 - Nitrogen dioxide
- ☐ SiO2 - Silicon dioxide

Create a systematic name for a hypothetical compound with the formula X2Y5, where X and Y are non-metal elements. Explain your naming process.

Hint: Consider the structure and composition of the compound.

Propose names for the following hypothetical compounds and justify your choices:

Hint: Use the appropriate prefixes and suffixes for naming.

1. A2X3

2. C3D2