

Covalent Naming Worksheet Answer Key PDF

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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?

undefined. Mono-

undefined. Di- ✓

undefined. Tri-

undefined. Tetram-

The correct prefix for indicating two atoms is 'Di-'.

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

undefined. Penta- ✓

undefined. Hexa- ✓

undefined. Octa- ✓

undefined. Nona- ✓

Prefixes such as Penta-, Hexa-, Octa-, and Nona- are used to indicate the number of atoms.

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

'Mono-' is often omitted for the first element to simplify the name, as it is understood that there is one atom.

List the names of the following covalent compounds: CO₂, H₂O, NH₃.

1. CO₂

Carbon dioxide

2. H₂O

Water (or Dihydrogen monoxide)

3. NH₃

Ammonia (or Nitrogen trihydride)

The names are Carbon dioxide, Water (or Dihydrogen monoxide), and Ammonia (or Nitrogen trihydride).

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

undefined. -ate

undefined. -ide ✓

undefined. -ite

undefined. -ous

The suffix typically used for the second element is '-ide'.

Part 2: Understanding and Interpretation

Which of the following compounds is named correctly?

undefined. Dinitrogen monoxide

undefined. Nitrogen oxide

undefined. Nitrogen dioxide ✓

undefined. Nitrogen trioxide

The correctly named compound is 'Nitrogen dioxide'.

Which of the following statements about covalent compounds are true?

undefined. They are formed by sharing electrons. ✓

undefined. They are typically formed between metals and non-metals.

undefined. They use prefixes to indicate the number of atoms. ✓

undefined. They are named with the more electronegative element first.

The true statements are: They are formed by sharing electrons, they use prefixes to indicate the number of atoms.

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

The process involves identifying the elements, using prefixes for the number of atoms, and applying the correct suffix.

Part 3: Application and Analysis

What is the correct name for the compound SF₆?

undefined. Sulfur hexafluoride ✓

undefined. Sulfur fluoride

undefined. Hexasulfur fluoride

undefined. Sulfur heptafluoride

The correct name for SF₆ is 'Sulfur hexafluoride'.

Identify the correct names for the following compounds:

undefined. PCl₅ - Phosphorus pentachloride ✓

undefined. N₂O₄ - Dinitrogen tetroxide ✓

undefined. SO₃ - Sulfur trioxide ✓

undefined. CCl₄ - Carbon tetrachloride ✓

The correct names are: PCl₅ - Phosphorus pentachloride, N₂O₄ - Dinitrogen tetroxide, SO₃ - Sulfur trioxide, CCl₄ - Carbon tetrachloride.

Given the compound formula C₂H₆, provide its systematic name and explain your reasoning.

The systematic name is Ethane, as it consists of two carbon atoms and six hydrogen atoms.

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

undefined. Sodium and Chlorine

undefined. Hydrogen and Oxygen ✓

undefined. Calcium and Oxygen

undefined. Magnesium and Sulfur

The pair most likely to form a covalent compound is Hydrogen and Oxygen.

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

undefined. They have high melting and boiling points.

undefined. They are typically poor conductors of electricity. ✓

undefined. They are usually soluble in water.

undefined. They can exist as gases, liquids, or solids at room temperature. ✓

The correct statements are: They are typically poor conductors of electricity, 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.

P₄O₁₀ is named tetraphosphorus decoxide, which follows the naming conventions but may seem complex due to the number of atoms.

Part 4: Evaluation and Creation

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

undefined. H₂

undefined. O₂

undefined. N₂ ✓

undefined. F₂

The compound with the strongest covalent bonds is N₂.

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

undefined. CO - Carbon monoxide ✓

undefined. H₂S - Dihydrogen sulfide ✓

undefined. NO₂ - Nitrogen dioxide ✓

undefined. SiO₂ - Silicon dioxide ✓

The correctly named compounds are: CO - Carbon monoxide, H₂S - Dihydrogen sulfide, NO₂ - Nitrogen dioxide, SiO₂ - Silicon dioxide.

Create a systematic name for a hypothetical compound with the formula X_2Y_5 , where X and Y are non-metal elements. Explain your naming process.

The systematic name could be **Dioxyptentaylide**, following the prefix and suffix conventions for naming.

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

1. A_2X_3

Dioxide triaide

2. C_3D_2

Tricarbon dihydride

The names could be A_2X_3 - Dioxide triaide, C_3D_2 - Tricarbon dihydride, following the naming conventions.