Naming Molecular Compounds Worksheet Answer Key PDF

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Part 1: Building a Foundation

What type of bond holds molecular compounds together?

undefined. A) Ionic

undefined. B) Covalent ✓

undefined. C) Metallic

undefined. D) Hydrogen

The correct answer is B) Covalent, as molecular compounds are formed by covalent bonds.

Which of the following are prefixes used in naming molecular compounds?

undefined. A) Mono- ✓

undefined. B) Di- ✓

undefined. C) Tetra- ✓

undefined. D) Hexa- ✓

The correct answers are A) Mono-, B) Di-, C) Tetra-, and D) Hexa- as all are prefixes used in naming.

Explain why the prefix 'mono-' is often omitted when naming the first element in a molecular compound.

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

List the prefixes for the numbers 3, 5, and 7 used in naming molecular compounds.

1. 3

Tri-

2. 5
Penta-

3. 7
Hepta-

The prefixes are: 3 - Tri-, 5 - Penta-, 7 - Hepta-.

Which of the following is the correct name for the compound CO_2?

undefined. A) Carbon monoxide
undefined. B) Carbon dioxide ✓
undefined. C) Dicarbon monoxide
undefined. D) Monocarbon dioxide

The correct answer is B) Carbon dioxide, as it follows the naming rules for molecular compounds.

Part 2: comprehension and Application

Identify the correct statements about naming molecular compounds:

undefined. A) The second element is named with an '-ide' suffix. ✓
undefined. B) Prefixes are used to indicate the number of atoms. ✓
undefined. C) The first element always uses the prefix 'mono-'.
undefined. D) Double vowels are always retained in compound names.

The correct statements are A) The second element is named with an '-ide' suffix and B) Prefixes are used to indicate the number of atoms.

Describe the rule for naming the second element in a molecular compound.

The second element in a molecular compound is named using the root of the element's name followed by the '-ide' suffix.

Which of the following is the correct name for N_2O_5?

undefined. A) Nitrogen pentoxide
undefined. B) Dinitrogen pentoxide ✓
undefined. C) Nitrogen dioxide

undefined. D) Dinitrogen pentoxygen

The correct answer is B) Dinitrogen pentoxide, as it accurately reflects the number of nitrogen and oxygen atoms.

Given the compound SF_6, provide the name and explain the use of prefixes in its naming.

1. Name

Sulfur hexafluoride

2. Explanation

The prefix 'hexa-' indicates there are six fluorine atoms.

The name for SF_6 is Sulfur hexafluoride, where 'hexa-' indicates six fluorine atoms.

What is the correct name for the compound PCl_5?

undefined. A) Phosphorus chloride

undefined. B) Phosphorus pentachloride ✓

undefined. C) Phosphorus tetrachloride

undefined. D) Pentaphosphorus chloride

The correct answer is B) Phosphorus pentachloride, as it indicates five chlorine atoms.

Part 3: Analysis, Evaluation, and Creation

Analyze the following compound names and identify which are correctly named:

undefined. A) Sulfur hexafluoride (SF_6) ✓

undefined. B) Dinitrogen monoxide (N_2O) ✓

undefined. C) Carbon tetrachloride (CCl_4) ✓

undefined. D) Monocarbon dioxide (CO_2)

The correctly named compounds are A) Sulfur hexafluoride (SF_6), B) Dinitrogen monoxide (N_2O), and C) Carbon tetrachloride (CCl_4).

Compare and contrast the naming conventions for ionic and molecular compounds.

Ionic compounds are named based on the charges of the ions, while molecular compounds use prefixes to indicate the number of atoms.

Which of the following compounds is incorrectly named?

undefined. A) N_2O_4 - Dinitrogen tetroxide

undefined. B) CO - Carbon monoxide

undefined. C) H_2O - Dihydrogen monoxide

undefined. D) P_2O_5 - Diphosphorus pentoxide ✓

The incorrectly named compound is D) P_2O_5 - Diphosphorus pentoxide, as it should be D) Diphosphorus pentoxide.

Evaluate the naming process for molecular compounds and suggest any improvements or simplifications that could be made.

The naming process could be simplified by standardizing prefixes and reducing exceptions to the rules.

Create names for the following compounds and justify your naming choices:

1. NO_2

Nitrogen dioxide

2. P_4O_{10}

Tetraphosphorus decoxide

The names for the compounds are: NO_2 - Nitrogen dioxide, P_4O_{10} - Tetraphosphorus decoxide.

Which naming convention change would most simplify the process for beginners?

undefined. A) Removing all prefixes ✓

undefined. B) Using numbers instead of prefixes

undefined. C) Standardizing the order of elements

undefined. D) Eliminating the '-ide' suffix

The most simplifying change would be A) Removing all prefixes, as it would reduce complexity for beginners.