Acid Naming Worksheet

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Part 1: Building a Foundation

What is the definition of an acid?

Hint: Think about what substances release in water.

- ◯ A) A substance that releases hydroxide ions in water
- ◯ B) A substance that releases hydrogen ions in water
- ◯ C) A substance that releases oxygen ions in water
- ◯ D) A substance that releases sodium ions in water

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Hint: Consider the properties of acids.

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Which of the following are examples of binary acids?

Hint: Consider the acids that consist of only two elements.

- ☐ A) Hydrochloric acid (HCl)

- [ ] B) Sulfuric acid (H_2SO_4)
- [ ] C) Hydrobromic acid (HBr)
- [ ] D) Nitric acid (HNO_3)

Which of the following are examples of binary acids?

Hint: Think about the structure of binary acids.

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Describe the general naming convention for binary acids.

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List the names of the following acids:

Hint: Provide the common names for each acid.

1. A) HCl

2. B) H_2SO_4

3. C) HNO_3

List the names of the following acids:

Hint: Refer to the chemical formulas provided.

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What is the suffix used in naming oxyacids that contain a polyatomic ion ending in "-ate"?

Hint: Consider the relationship between the suffixes of polyatomic ions and their corresponding acids.

- ◯ A) -ous
- ◯ B) -ic
- ◯ C) -ide
- ◯ D) -ate

What is the suffix used in naming oxyacids that contain a polyatomic ion ending in "-ate"?

Hint: Think about the relationship between the suffix and the polyatomic ion.

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What is the suffix used in naming oxyacids that contain a polyatomic ion ending in "-ate"?

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- ◯ C) -ide
- ◯ D) -ate

Part 2: Comprehension and Application

Which of the following are true about oxyacids?

Hint: Consider the components and naming conventions of oxyacids.

- ☐ A) They contain hydrogen, oxygen, and another element.
- ☐ B) They are named based on the polyatomic ion they contain.
- ☐ C) They always end with the suffix "-ous."
- ☐ D) They can be named using the prefix "hydro-."

Explain why sulfuric acid is named as such based on its chemical composition.

Hint: Consider the elements present in sulfuric acid.

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If you have an acid with the formula H_2CO_3, what is its name?

Hint: Think about the common names of acids derived from carbon.

- ◯ A) Carbonic acid
- ◯ B) Carbonous acid
- ◯ C) Hydrocarbonic acid

◯ D) Hydrocarbonous acid

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Hint: Consider the common names of acids.

◯ A) Carbonic acid
◯ B) Carbonous acid
◯ C) Hydrocarbonic acid
◯ D) Hydrocarbonous acid

Which of the following acids will conduct electricity in an aqueous solution?

Hint: Consider the dissociation of acids in water.

☐ A) Hydrochloric acid (HCl)
☐ B) Acetic acid (CH_3COOH)
☐ C) Phosphoric acid (H_3PO_4)
☐ D) All of the above

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Given the polyatomic ion phosphate (PO_4^{3-}), predict the name of the acid H_3PO_4.

Hint: Consider the naming conventions for acids derived from polyatomic ions.

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Given the polyatomic ion phosphate (PO_4^{3-}), predict the name of the acid H_3PO_4.

Hint: Think about the naming conventions for acids.

Given the polyatomic ion phosphate (PO_4^{3-}), predict the name of the acid H_3PO_4.

Hint: Consider the relationship between the ion and the acid name.

Part 3: Analysis, Evaluation, and Creation

Which of the following statements best explains the difference between binary acids and oxyacids?

Hint: Think about the components of each type of acid.

- ◯ A) Binary acids contain only hydrogen and oxygen.
- ◯ B) Oxyacids contain hydrogen, oxygen, and another element.
- ◯ C) Binary acids are named with the suffix "-ous."
- ◯ D) Oxyacids are named with the prefix "hydro-."

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- ◯ D) Oxyacids are named with the prefix "hydro-."

Analyze the following acids and determine which are correctly named:

Hint: Consider the naming conventions for each acid.

- ☐ A) HNO_2 as nitrous acid
- ☐ B) $HClO_4$ as perchloric acid
- ☐ C) H_2SO_3 as sulfuric acid
- ☐ D) HBr as hydrobromic acid

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Compare and contrast the naming conventions of binary acids and oxyacids, providing examples for each.

Hint: Think about the structure and components of each type of acid.

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Compare and contrast the naming conventions of binary acids and oxyacids, providing examples for each.

Hint: Think about the structure and naming rules.

Which of the following acids would you expect to be the strongest in terms of ionization in water?

Hint: Consider the strength of the acids based on their dissociation in water.

- ◯ A) Hydrochloric acid (HCl)
- ◯ B) Acetic acid (CH_3COOH)
- ◯ C) Phosphoric acid (H_3PO_4)
- ◯ D) Sulfurous acid (H_2SO_3)

Compare and contrast the naming conventions of binary acids and oxyacids, providing examples for each.

Hint: Think about the prefixes and suffixes used in naming.

Which of the following acids would you expect to be the strongest in terms of ionization in water?

Hint: Consider the strength of acids in solution.

- ◯ A) Hydrochloric acid (HCl)
- ◯ B) Acetic acid (CH_3COOH)
- ◯ C) Phosphoric acid (H_3PO_4)
- ◯ D) Sulfurous acid (H_2SO_3)

Evaluate the following statements and select those that are true regarding acid properties:

Hint: Consider the general characteristics of acids.

- ☐ A) Acids can neutralize bases.

- [ ] B) Acids are slippery to the touch.
- [ ] C) Acids have a pH greater than 7.
- [ ] D) Acids can corrode metals.

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Design a real-world experiment to test the conductivity of different acids in aqueous solutions. Describe the materials, procedure, and expected outcomes.

Hint: Think about the setup and what you want to measure.

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Design a real-world experiment to test the conductivity of different acids in aqueous solutions. Describe the materials, procedure, and expected outcomes.

Hint: Consider the setup and variables involved.

Design a real-world experiment to test the conductivity of different acids in aqueous solutions. Describe the materials, procedure, and expected outcomes.

Hint: Consider the setup and measurements needed.