

Naming Notes - Chapters 8 and 9

I. Valence Electrons - Recap

A. These are the

1. Quick memory jogger:

- a. _____ are the most nonreactive elements.
- b. This group has _____ valence electrons.
- c. How do you know how many valence electrons an element has?

B. _____ for atoms

1. These diagrams only show

2. How to draw them:

- a. Write the symbol of the element
- b. Find the number of valence electrons it has
- c. Draw each valence electron as a dot around the element.

NOTE: Start at the top and draw them one at a time and clockwise.

d. Examples:

II. Bonding Fundamentals

A. _____ Every element

1. If they can't get _____, they will work with other atoms to get

2. NOTE:

B. Three types of bonding:

- 1.
- 2.
- 3.

III. Predicting Ionic Compounds

A. Ionic bonding is modeled through LDD's.

B. Given two elements:

1. Draw the original LDD's for the neutral atoms (one of each)
2. Transfer all the metal's electrons to the nonmetal
 - a. If the nonmetal needs more electrons, add another metal.
 - b. If the metal has extra electrons, add another nonmetal.
 - c. Repeat until all are happy!
3. Count the amount of atoms of each and report it as a subscript in a formula (metal first!).
 - a. If the amount is one, do not write a number

C. Practice:

1. Mg and O

3. Al and Cl

2. Be and Cl

4. Al and O

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IV. Naming Ionic Compounds

- A. Name the
- B. Name the Replace the last syllables with the
- C. In any formula, you must
- D. Examples:

V. Transition Metals

- A. Predicting the formula:
 - 1. Many transition metals and other metals have
 - a. The they have in a compound is
 - i. Example: Write the formulas for the following:
Copper (I) Oxide

Copper (II) Oxide
- B. Naming the formula:
 - 1. When naming transition metal compounds,
 - a. The charge of the metal can be
 - b. Example: Name the following (please add the Roman numeral)
 - i. Fe_2O_3
 - ii. FeO

- c. NOTE:
write the Roman number for these.

DO NOT

VI. Polyatomic Ions

- A. Some ions have
- B. They are
- C. They are like
- D. You will need to memorize the following (p. 224):

-Ammonium	NH_4^+	-Acetate	$\text{C}_2\text{H}_3\text{O}_2^-$
-Nitrate	NO_3^-	-Carbonate	CO_3^{2-}
-Hydroxide	OH^-	-Sulfate	SO_4^{2-}
-Cyanide	CN^-	-Thiosulfate	$\text{S}_2\text{O}_3^{2-}$
-Permanganate	MnO_4^-	-Peroxide	O_2^{2-}
-Chlorate	ClO_3^-	-Phosphate	PO_4^{3-}
-Perchlorate	ClO_4^-		

VII. Naming Covalent Compounds

- A. Name the elements in the order they appear.
- B. Replace the last syllable in the name of the final element with “-ide.”
- C. Add prefixes to the name of each element to indicate the number of atoms of that element in the molecule.
 - 1. Mono-, di-, tri-, tetra-, penta-, hexa-, hepta-, octa-, nona-, deca-
 - 2. The prefix mono- is omitted for the first element.
- D. Examples

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1. CO_2
2. SCl_6
3. N_2O_5

VIII. Predicting Covalent Compounds

- A. The _____ !
 B. Write the _____ for each element mentioned.
 C. Write in the _____ associated with each element. (NOTE: Don't write a subscript if there is one of an element)
 D. Examples:
 Carbon monoxide Tetraphosphorus Decoxide Dihydrogen Monoxide

IX. General Rules for...

- A. naming:
1. Identify whether it's
 2. If it is ionic,
 - a. Underline cation () then the rest is the anion.
 - b. Make sure that the
 - c. Watch out for transition metals! You have to
 3. If it is covalent, just name it with (which are determined by the).
- B. writing formulas
1. Does the name have prefixes?
 - a. where the prefixes determine the subscripts.
 - b. (criss cross if you must)
 2. NOTE:

X. Acid Names and Formulas

- A. Acids are combinations of the
1. Examples:
- B. Naming of acids are based on the
1. Anions with ending are named
Examples: hydrochloric acid
 HBr
 2. Anions with ending are named
Examples: HNO_3
acetic acid
 H_2CO_3