

Hey, Baby. You and I Have a Bond...Ionic Bonding...Ch. 8

I. Valence Electrons - Recap

A. These are the

1. Quick memory jogger:

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

B. _____ for atoms

1. These diagrams only show

2. How to draw them:

- Write the symbol of the element
- Find the number of valence electrons it has
- 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:

-
-
-

C. Type of bond is determined by

(p. 263-4).

-
-

III. IONIC BONDING

A. Atoms can

or

to become

B. How it happens (Let's first focus on two atoms):

- When a metal and a nonmetal meet,
- Once the _____ they become _____.
 - The _____
 - The _____
- Because _____, they are

This is when _____.

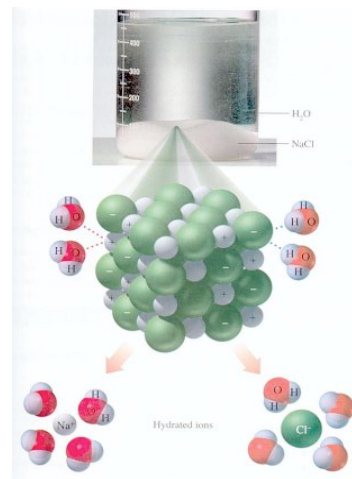
4. There are usually more than two ions present when

-
- BUT, all the ions want to join in!
- They start arranging themselves into
-
- Ionically bonded compounds are called

C. Ionic Bonding Properties

1. Ionic bonds are

- Because of this, they are:
 -



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- ii.
- iii.
- 2. When _____, they will form solutions with ions,
 - a. This is also known as an _____

IV. 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 |

V. Naming Ionic Compounds

A. Name the _____

B. Name the _____ Replace the last syllables with the _____

C. In any formula, you must _____

D. Examples: _____

VI. 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:
Roman number for these.

DO NOT write the

VII. Polyatomic Ions

A. Some ions have

B. They are

C. They are like

D. You will need to memorize the following (p. 224):

-Ammonium

-Nitrate

-Hydroxide

-Cyanide

-Permanganate

-Chlorate

-Perchlorate

-Acetate

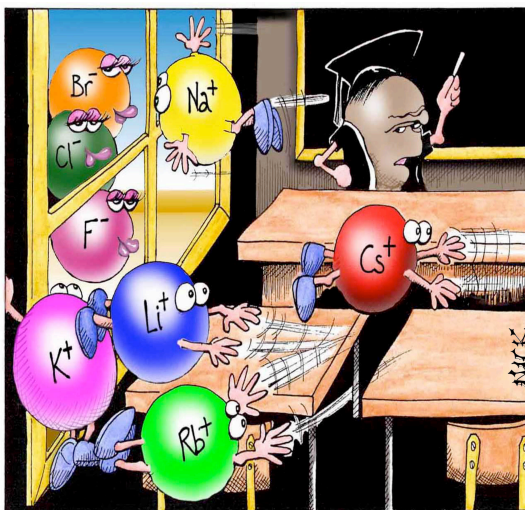
-Carbonate

-Sulfate

-Thiosulfate

-Peroxide

-Phosphate



"Perhaps one of you gentlemen would mind telling me just what it is outside the window that you find so attractive..?"