

Before You do ANYTHING ELSE, save a copy of this file as "Your Names".....for example, Save as "Sonny and Cher"!!

Upon Completion, save the file again. You will be graded on this!

Answers are located as an Adobe file in the class folder!

# Formulas and Names of Compounds

Text Pages 282-288 ✓

Use the Periodic Table of Elements on pages 258-259 of your textbook to identify the oxidation numbers of the elements in each group.

+1 1. any element in Group 1

-1 2. any element in Group 17

+2 3. any element in Group 2

0 4. any element in Group 18

-2 5. any element in Group 16

Answer the following questions in the spaces provided. Use the Periodic Table if you need help.

1. What is the usual oxidation number of oxygen? -2

2. What is the usual oxidation number of hydrogen? +1

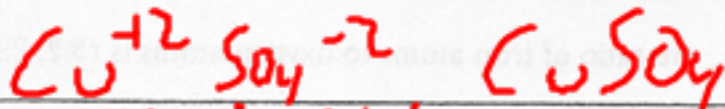
3. What name is given to many of the elements that have more than one oxidation number?  
transition metals

4. What is the sum of oxidation numbers in a compound? zero

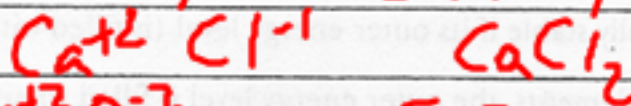
5. What is an oxidation number? charge, once atom gains  
loses electrons to become stable

Write the formulas for the following compounds. Use the Periodic Table of the Elements or Tables 11-3 and 11-4 of your textbook for help.

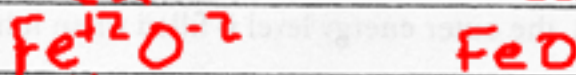
1. copper(II) sulfate



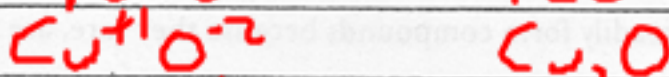
2. calcium chloride



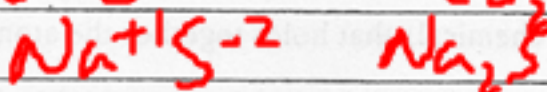
3. iron(II) oxide



4. copper(I) oxide



5. sodium sulfide



Complete the following table by providing the name of the compound and the total number of atoms in each formula given.

Formula	Name	Number of Atoms
$\text{NH}_4\text{OH}$	Ammonium Hydroxide	7
$\text{NH}_4\text{Cl}$	Ammonium Chloride	6
$\text{Ag}_2\text{O}$	Silver Oxide	3
$\text{K}_2\text{SO}_4$	Potassium Sulfate	7
$\text{Ca}(\text{NO}_3)_2$	Calcium Nitrate	9
$\text{Na}_2\text{S}$	Sodium Sulfide	3

# Why Atoms Combine

Text Pages 268-273

Each statement below contains a pair of terms or phrases in parentheses. Circle the term or phrase that makes each statement true.

1. Most of the matter around you is in the form of (elements, **compounds**).
2. The properties of a compound are (the same as, **different from**) the properties of the elements that make up the compound.
3. Na and Cl are (**chemical symbols**, chemical formulas).
4. NaCl and NaOH are (chemical symbols, **chemical formulas**).
5.  $H_2O$  is the formula for (salt, **water**).
6. In the formula  $H_2O$ , the number 2 is a (**subscript**, superscript).
7. In the formula HCl, the ratio of hydrogen atoms to **chlorine** atoms is (**1:1**, 2:1).
8. The number 2 in the formula  $H_2O$  tells you that each unit of this compound contains (**2 hydrogen atoms**, 2 oxygen atoms).
9. If a symbol in a chemical formula does not have a subscript after it, a unit of that compound contains (0 atoms, **1 atom**) of that element.
10. In the formula  $Fe_2O_3$ , the ratio of iron atoms to oxygen atoms is (3:2, **2:3**).



11. An atom is chemically stable if its outer energy level (~~is filled with~~, contains no) electrons.
12. For atoms of most elements, the outer energy level is filled when it has (3, 8) electrons.
13. The noble gases do not readily form compounds because they (~~are~~, are not) chemically stable.
14. A chemical bond is a (~~force~~, chemical) that holds together the atoms in a compound.
15. Chemical bonds form when atoms lose, gain, or (~~share~~, multiply) electrons.

Complete the table below by using the formula of each compound to identify the elements that each compound contains and the ratios of those elements. The first one has been done for you as an example.

Formula	Elements in Compound	Ratios
H <sub>2</sub> O	hydrogen, oxygen	2:1
NaOH	Sodium, Oxygen, Hydrogen	1:1:1
NaCl	Sodium, Chlorine	1:1
NH <sub>3</sub>	Nitrogen, Hydrogen	1:3
H <sub>2</sub> SO <sub>4</sub>	Hydrogen, Sulfur, Oxygen	2:1:4
SiO <sub>2</sub>	Silicon, Oxygen	1:2

For the compound below, write down the name of each element....Tell how many atoms of each element the compound contains, and tell how many total atoms are found in the compound:



Sodium - 1

Oxygen - 1

Hydrogen

3

3

For the compound below, write down the name of each element....Tell how many atoms of each element the compound contains, and tell how many total atoms are found in the compound:



Potassium	- 2
Sulfur	- 1
Oxygen	- 4
	<hr/>
	7

For the compound below, write down the name of each element....Tell how many atoms of each element the compound contains, and tell how many total atoms are found in the compound:



Sodium - 2

Sulfur - 1

Oxygen - 4

7



For the compound below, write down the name of each element....Tell how many atoms of each element the compound contains, and tell how many total atoms are found in the compound:

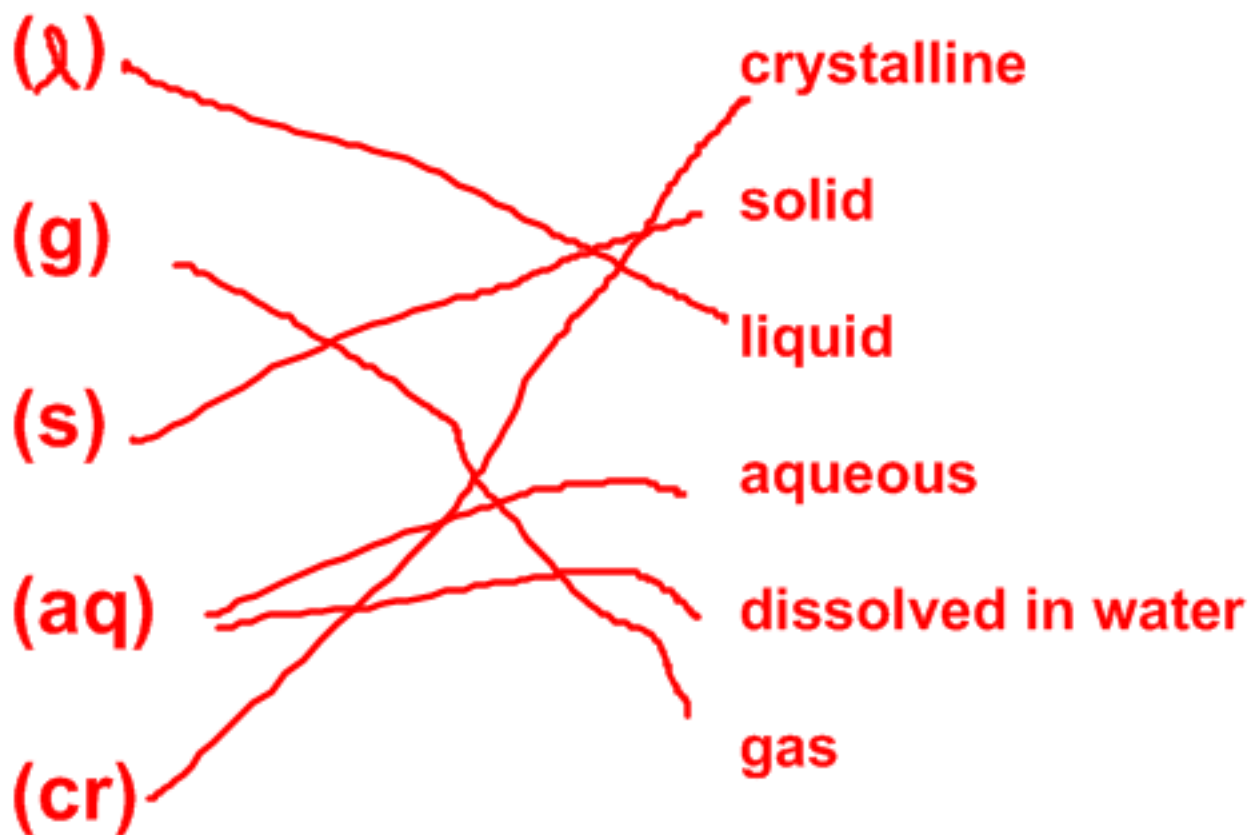


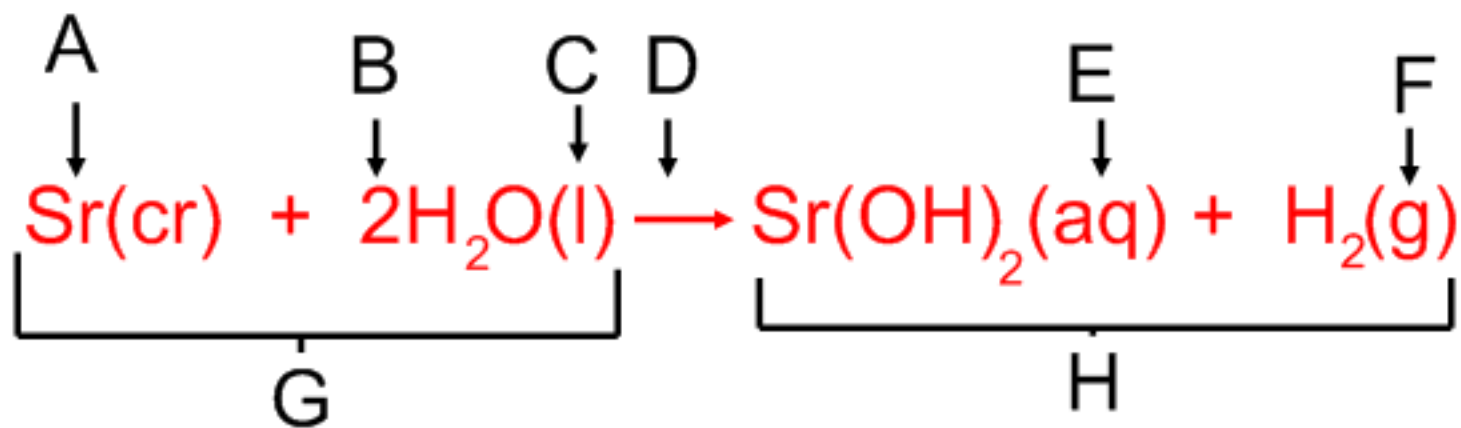
Zinc - 1

Nitrogen - 2

Oxygen = ~~6~~  
9

Occasionally in a chemical reaction, there are symbols that follow the element or compounds.....Match the following symbols with their meaning:





A Element

E Dissolved in water

B Coefficient

F gas

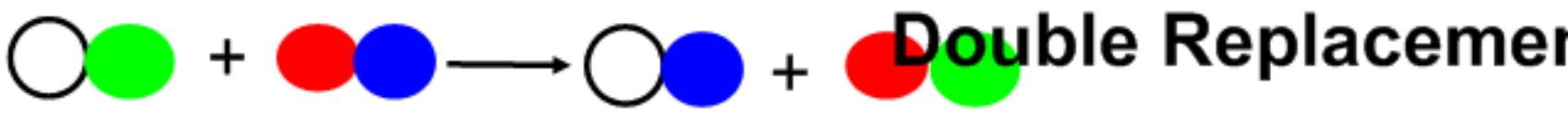
C liquid

G Reactants

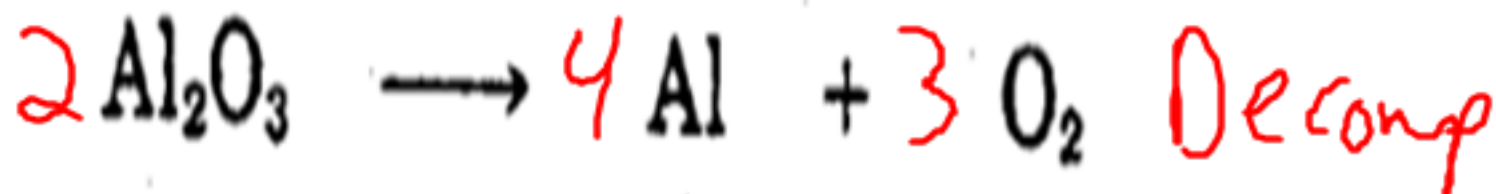
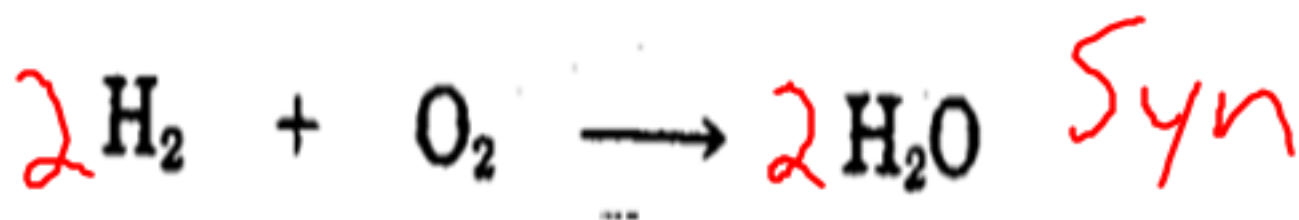
D Yields

H Products

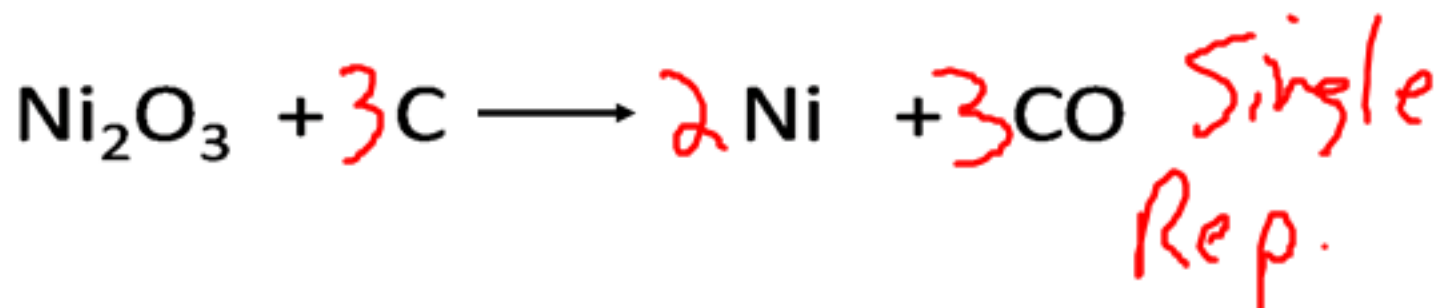
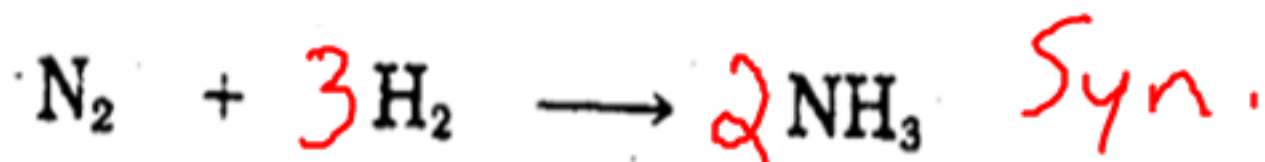
Match the models with the types of reactions they represent:



**Balance the following Chemical Reactions  
and tell which type of reaction it is:**



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and tell which type of reaction it is:**



Complete the table below:

<u>Element</u>	<u># of Valence Electrons</u>	<u>Oxidation #</u>
Sodium	1	+1
Carbon	4	+4
Radon	8	0
Nitrogen	5	-3
Selenium	6	-2
Lithium	1 <del>2</del>	+1
Bromine	7	-1

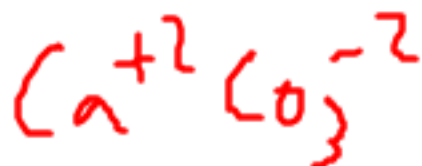
1. The atomic # is the number of protons in an atom.
2. The chemical symbol represents the name of an element.
3. The oxidation # tells you how many electrons an atom must gain, lose, or share to become stable.
4. The sum of the oxidation numbers in a neutral compound is always zero.
5. A group of atoms that acts together as one charged atom is a(n) polyatomic ions.

Name the following compounds:

1.  $\text{MgCO}_3$  \_\_\_\_\_ Magnesium Carbonate
2.  $\text{NaC}_2\text{H}_3\text{O}_2$  \_\_\_\_\_ Sodium Acetate
3.  $\text{CaSO}_4$  \_\_\_\_\_ Calcium Sulfate
4.  $(\text{NH}_4)_2\text{O}$  \_\_\_\_\_ Ammonium Oxide
5.  $\text{Na}_2\text{CrO}_4$  \_\_\_\_\_ Sodium Chromate
6.  $\text{Ca}(\text{ClO}_3)_2$  \_\_\_\_\_ Calcium Chlorate
7.  $\text{Al}_2(\text{CO}_3)_3$  \_\_\_\_\_ Aluminium Carbonate
8.  $(\text{NH}_4)_2\text{CrO}_4$  \_\_\_\_\_ Ammonium Chromate

Write formulas for the following compounds:

### Calcium Carbonate



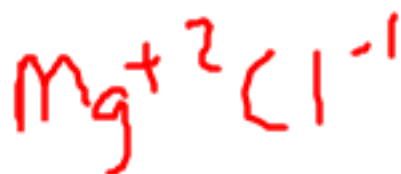
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### Potassium Oxide

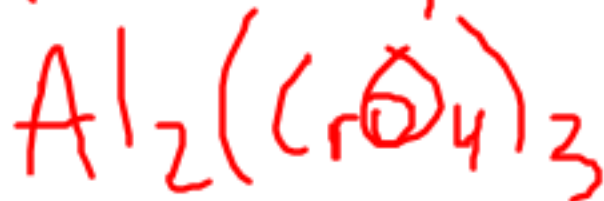
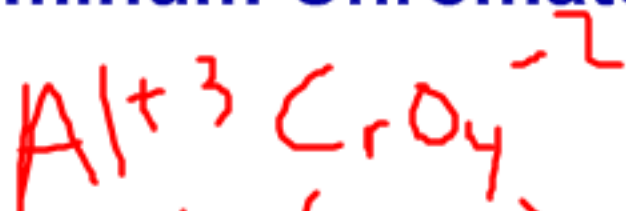


Write formulas for the following compounds:

### Magnesium Chloride



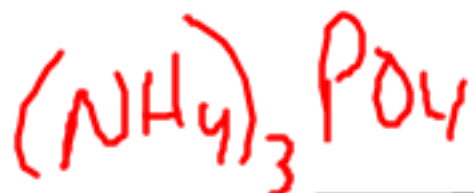
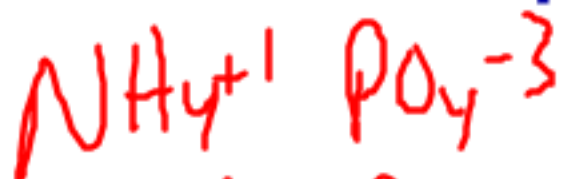
### Aluminum Chromate



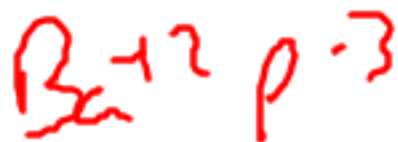


Write formulas for the following compounds:

### Ammonium Phosphate



### Barium Phosphide



1. The oxidation #'s of an atom are written as superscripts.
2. In a chemical formula, the number of each type of atom in the compound is shown by numbers called subscripts.
3. Numbers that precede symbols and formulas in a chemical equation are coefficients.

In the following compounds, what is the oxidation # of the metal(or metal ion)?



Place the following groups of elements with what the group contains:

