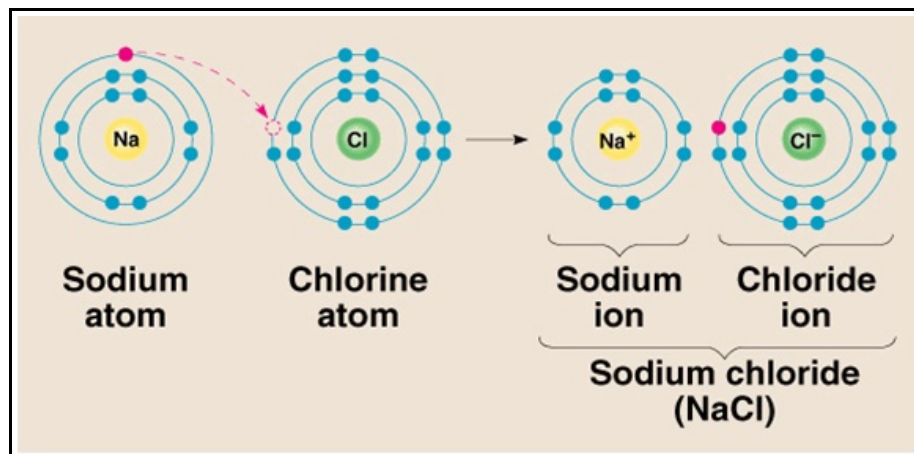


Science 1206
Unit 2: Chemical Reactions
Worksheet 7: Ionic -Simple Binary



Ionic Bonding results from the “transfer” of electrons from a metal to a nonmetal.



RULES FOR NAMING- IONIC COMPOUNDS :

1. Common names of Ionic compounds

- (i) sodium chloride (NaCl)
- (ii) calcium carbonate (CaCO³)
- (iii) sodium hydroxide (NaOH)

2. Rules For Naming Binary Ionic Compounds

- i) Name the cation (+) by writing the full name of the metal
- ii) Name the anion (-) by shortening the name of the atom and add the ide ending

Examples:

LiBr	lithium bromide
AlCl ₃	aluminum chloride
Rb ₂ S	rubidium sulfide
Mg ₃ N ₂	magnesium nitride

Note: Do Not use prefixes - they are for molecular compounds (two non-metals). Ionic compounds are writing as empirical formulas (lowest ratio)

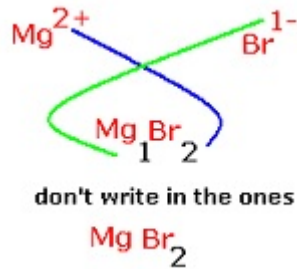


RULES FOR WRITING SIMPLE BINARY IONIC FORMULA

1. Write down the symbols of the ions involved
2. Determine the lowest whole number ratio of the ions that will give a net charge of zero.
3. Write the formula removing all charges

Check out the Cross Multiplying Method Below:

What is the chemical formula for the ionic compound that contains magnesium ions and bromide ions.



PART A: MULTIPLE CHOICE

1. A chemical bond formed by exchange of electrons is called
 - (A) An ionic bond
 - (B) A magnetic bond
 - (C) A hydrate bond
 - (D) A covalent bond
2. The name of the compound with the formula KCl is
 - (A) Chloride potassium
 - (B) Potassium chlorate
 - (C) Potassium chloride
 - (D) Chlorate potassium
3. Ionic bonds are generally formed between:
 - (A) Two metals
 - (B) A metal and a nonmetal
 - (C) Two nonmetals
 - (D) All are correct
4. An ionic bond is a bond that forms between
 - (A) Ions with opposite charges
 - (B) Atoms with neutral charges
 - (C) One atom's nucleus and another atom's electrons
 - (D) The electrons of two different atoms
5. In the process of ionic bonding
 - (A) Both atoms gain electrons
 - (B) One atom gains one or more electrons and the other loses the same number
 - (C) Atoms switch protons
 - (D) Both atoms lose electrons

6. Which pair of elements is most likely to form an ionic compound with each other?
- (A) Calcium, sulfide
 - (B) Oxygen, fluorine
 - (C) Sulfur, carbon
 - (D) Nitrogen, hydrogen
7. Which of the following compounds would you expect to be ionic?
- (A) SF_6
 - (B) H_2O
 - (C) CO_2
 - (D) CaO
8. Which of the following compounds would you expect to be ionic?
- (A) H_2O
 - (B) CO_2
 - (C) SrCl_2
 - (D) SO_2
9. Of the choices below, which one is not an ionic compound?
- (A) PCl_5
 - (B) CrCl_6
 - (C) NaC
 - (D) PbCl_2
10. What is the correct name for the compound Na_2O ?
- (A) Disodium oxide
 - (B) Disodium monoxide
 - (C) Sodium oxide
 - (D) Sodium monoxide
11. What is the formula of the compound formed between strontium ions and nitrogen ions?
- (A) SrN
 - (B) Sr_3N_2
 - (C) Sr_2N_3
 - (D) SrN_2
12. Predict the formula of the ionic compound that forms from calcium and fluorine.
- (A) CaF_2
 - (B) C_2F
 - (C) Ca_2F_2
 - (D) Ca_2F_3
13. Predict the formula of the ionic compound that forms from magnesium and fluorine.
- (A) Mg_2F_3
 - (B) MgF
 - (C) Mg_2F
 - (D) MgF_2

14. Predict the formula of the ionic compound that forms from magnesium and oxygen.

- (A) Mg_2O
- (B) MgO
- (C) MgO_2
- (D) Mg_2O_2

15. Predict the formula of the ionic compound that forms from aluminum and oxygen.

- (A) AlO
- (B) Al_3O_2
- (C) Al_2O_3
- (D) AlO_2

PART B: WRITTEN RESPONSE

1. List two features of an ionic bond [2]

(I) _____

(II) _____

2. Name the following ionic compounds:

	Formula	Name of Ionic Compound
1	KCl	
2	$SrCl_2$	
3	CaO	
4	$AlBr_3$	
5	Ag_2S	
6	Na_3P	
7	RbF	
8	ZnI_2	
9	Li_3N	
10	Ba_3P_2	
11	Al_2S_3	
12	MgF_2	
13	NaCl	
14	Cs_2O	
15	$BaCl_2$	
16	KBr	
17	Ca_3N_2	
18	AgF	
19	Sr_3N_2	
20	Mg_3P_2	

3. Use a periodic table to complete the table below:

	Element Name	Element Symbol	Ion Name	Ion Formula
1	sodium			
2	bromine			
3	magnesium			
5	chlorine			
6	oxygen			
7	sulfur			
8	lithium			
9	phosphorus			
10	aluminum			

4. Use a periodic table to complete the table below:

	Name of Ionic Compound	Cation Formula	Anion Formula	Formula
1	sodium bromide			
2	calcium chloride			
3	magnesium sulfide			
4	aluminum oxide			
5	lithium phosphide			
6	cesium nitride			
7	potassium iodide			
8	barium fluoride			
9	rubidium nitride			
10	barium oxide			

5. Use a periodic table to complete the table below:

	Name of Ionic Compound	Formula
1	potassium iodide	
2	aluminum chloride	
3	lithium nitride	
4	barium chloride	
5	magnesium hydride	
6	magnesium chloride	
7	sodium sulfide	
8	zinc sulfide	
9	potassium chloride	
10	silver bromide	