

Naming Ions.

Chemistry: <http://genest.weebly.com>

Stop in for help every day at lunch and Tues & Thurs after school!!



Name PURE

Period TRUTH



1. This is a pretty good drawing of what Thomson thought a Plum Pudding NEUTRAL hydrogen atom looked like. It shows a positive circle with one electron in it.

		SO_4^{2-}	NH_4^+	He
This is (choose one) a) an anion b) neutral c) a cation	This is (choose one) a) an anion b) neutral c) a cation	This is (choose one) a) an anion b) neutral c) a cation	This is (choose one) a) an anion b) neutral c) a cation	This is (choose one) a) an anion b) neutral c) a cation

2. Go through the boxes below and do the following:

- circle any metal that has a variable charge
- cross out any polyatomic ion

CO_3^{2-}	Al^{3+}	Fe^{2+}	PO_4^{3-}	Au^+
	<u>Aluminum</u>	<u>IRON(II)</u>	<u>phosphate</u>	<u>gold I</u>






YOU DON'T NEED A ROMAN NUMERAL.

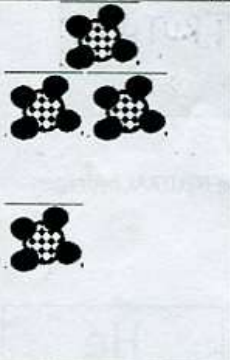
3. Go back through the boxes above and write the name. Remember the rules for naming:
- metal ions that do have a variable charge are the name of the element, followed by a roman numeral that tells the charge. For example Fe^{3+} is named *Iron(III)*
 - Polyatomic ions just get whatever name is on your photocopied ion sheet given on Tuesday.
 - metal ions that don't have a variable charge are called by their element name. For example, Sr^{2+} is just named *strontium*.

4. Do steps #2 and #3 on the boxes below

NO_3^-	Pb^+	V^{2+}	Au^{3+}	NH_4^+
<u>nitrate</u>	<u>LEAD(I)</u>	<u>VANADIUM(II)</u>	<u>gold(III)</u>	<u>ammonium</u>

Key to understanding the cartoons on this sheet:

1 chlorine atom	1 hydrogen atom	1 oxygen atom	1 nitrogen atom	1 carbon atom
				



5. How many atoms, total, are in this box? 20

6. How molecules are in this box? four

7. What is the formula of this compound? ~~CH₄~~ CH₄

8. Which would be an acceptable way to say what's in this box
a) C₈H₁₀ b) C₄H₁₆ c) other 4 CH₄

9. What is the molecular weight of this substance? (the units of your answer should be in g/mole. Your first step should be to look up the g/mole in the periodic table)

Name the following compounds by combining the names you wrote earlier in this sheet:

SKIP NO ₃ ⁻	Pb⁺	V²⁺	Au³⁺	NH₄⁺
CO₃²⁻	Na⁺	Fe²⁺	Au³⁺	Au⁺

- | | |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 10. Na ₂ CO ₃ <u>Sodium carbonate</u> | 14. Fe(NO ₃) ₂ <u>IRON (II) NITRATE</u> |
| 11. PbNO ₃ <u>lead (I) nitrate</u> | 15. (NH ₄) ₂ CO ₃ <u>AMMONIUM CARBONATE</u> |
| 12. Al ₃ (CO ₃) ₂ <u>aluminum carbonate</u> | 16. Au(NO ₃) ₃ <u>GOLD (III) NITRATE</u> |
| 13. VCO ₃ <u>Vanadium (II) carbonate</u> | 17. Fe ₃ (PO ₄) ₂ <u>IRON (II) PHOSPHATE</u> |

18. In the table below, fill in the formula of the ionic compound below its name:

Zinc sulfate <u>ZnSO₄</u>	Cobalt (II) carbide <u>SKIP</u>	Silver selenide <u>SKIP</u>	Ammonium sulfide <u>SKIP</u>
Lead (II) nitrate <u>Pb(NO₃)₂</u>	Silver oxalate <u>Ag₂C₂O₄</u>	Lead (IV) oxide <u>SKIP</u>	Magnesium oxide <u>SKIP</u>
Copper (I) sulfate <u>Cu₂SO₄</u>	Copper (II) sulfite <u>CuSO₃</u>	Sodium bicarbonate <u>NaHCO₃</u>	Strontium hypochlorite <u>Sr(ClO)₂</u>
Iron (III) oxide <u>SKIP</u>	Copper (I) chromate <u>Cu₂CrO₄</u>	Tin (II) sulfate <u>SnSO₄</u>	Potassium bisulfate <u>KHSO₄</u>

Naming Ions.

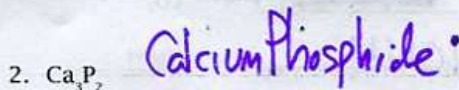
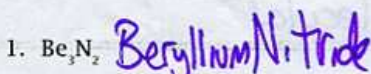
Chemistry: <http://genest.weebly.com>
Stop in for help every day at lunch and Tues & Thurs after school!



Name ALL
Period GOOD

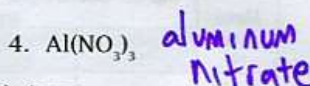
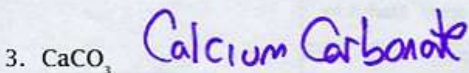
Situation 1: Metal from first two columns of the table WITH a nonmetal

Element Name • Element Name • "-ide"



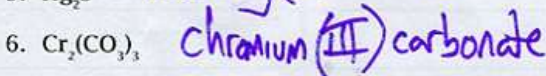
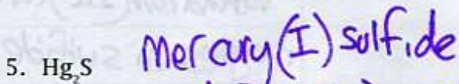
Situation 2: Metal from first two columns of the table WITH several nonmetals

Element Name • cheat sheet name

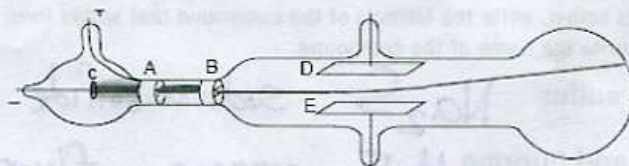


Situation 3: The metal on the left has a mysterious (variable) charge.

Element Name • roman numeral that only tells the charge • element name • ide

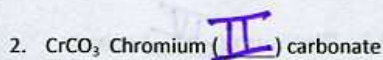


The next two questions are about this JJ Thomson apparatus shown below:



1. What did JJ Thomson conclude was shooting in a line from left to right in this drawing?
 - a. positive electrons
 - b. negative electrons
2. In this cathode ray tube, line is bending up. Based on the direction the electrons are bending, Which to you think is correct,
 - c. D is positive and E is negative (because if electrons negative, should curve toward positive object)
 - d. D is negative and E is positive
 - e. Both D and E are negative
 - f. Both D and E are positive.

Finish the name by writing in the appropriate Roman Numeral



3. $\text{Pt}(\text{NO}_3)_4$ Platinum (IV) nitrate

4. PdO_2 Palladium (IV) oxide

5. ~~Next to each write either Ionic Compound or Molecular Compound~~
~~CO₂~~ molecular

7. ionic CaBr_2

6. IONIC NaOH

8. molecular H_2CO_3

Formula	Metal present?	Which of the four situations above are applicable in this compound? One or more may apply. Mark X for any that apply.			Name the compound:
		Situation 1?	Situation 2?	Situation 3?	
7. PF_5	(yes/no)				
8. $\text{V}_2(\text{CO}_3)_3$	(yes/no)				Vanadium(III) carbonate
9. MgS	(yes/no)				magnesium sulfide
10. UF_3	(yes/no)				

For the pairs of elements below, write the formula of the compound that would form when those two elements combine and write the name of the compound.

1. Sodium and sulfur Na_2S sodium sulfide

2. Magnesium and fluorine MgF_2 magnesium fluoride

3. Beryllium and oxygen BeO beryllium oxide

Formula	Metal present?	Which of the four situations above are applicable in this compound? One or more may apply. Mark X for any that apply.			Name the compound:
		1	2	3	
4. $\text{Au}(\text{NO}_3)_3$	(yes/no)	X			gold(III) nitrate
5. NO	(yes/no)				
6. $\text{Fe}_2(\text{CO}_3)_3$	(yes/no)				iron(III) carbonate

Finish the name by writing in the appropriate Roman Numeral

11. CrO_3 Chromium (VI) oxide

13. $\text{Pt}(\text{NO}_3)_4$ Platinum (IV) nitrate

12. CrCO_3 Chromium (II) carbonate

14. Pd_3N_2 Palladium (II) nitride

Name _____

Multi, Multi Paroli

HR. _____

Do any fourty four problems (some from front, some from back) for full credit. Do 100% for 6 pts out of 5pts possible.

In the table below, fill in the formula of the ionic compound below its name:

HgCr_2O_7 Mercury (II) dichromate	$(\text{NH}_4)_3\text{PO}_4$ ammonium phosphate	FeCO_3 IRON (II) carbonate	$\text{Sn}_3(\text{PO}_4)_2$ tin (II) phosphate
$\text{Cu}(\text{ClO}_3)_2$ copper (II) chlorate	NH_4NO_3 ammonium nitrate	NaCl sodium chloride	AgI silver iodide
CaSO_4 calcium sulfate	PbO_2 lead (IV) oxide	PbO lead (II) oxide	$\text{Mg}(\text{MnO}_4)_2$ magnesium permanganate
FeS Iron (II) sulfide	Fe_2S_3 iron (III) sulfide	KMnO_4 potassium permanganate	$\text{Ca}(\text{OH})_2$ calcium hydroxide
$\text{Mo}(\text{ClO}_4)_2$ molybdenum (I) perchlorate	CoCl_2 cobalt (II) chloride	CuBr copper (I) bromide	CoCl_3 cobalt (III) chloride
$\text{Fe}_2(\text{Cr}_2\text{O}_7)_3$ iron (III) dichromate	FeCrO_4 iron (II) chromate	$\text{Fe}_2(\text{CrO}_4)_3$ IRON (III) chromate	CoP cobalt (III) phosphide
Na_2SO_4 sodium sulfate	NiF_2 nickel (II) fluoride	$\text{Be}(\text{NO}_2)_2$ beryllium nitrite	$\text{Be}(\text{NO}_3)_2$ beryllium nitrate
$\text{Mo}(\text{OH})_3$ molybdenum (III) hydroxide	$\text{K}_2\text{C}_2\text{O}_4$ potassium oxalate	Hg_2Cl_2 mercury (I) chloride	HgCl_2 mercury (II) chloride
$\text{Zn}(\text{H}_2\text{PO}_4)_2$ Zinc dihydrogen phosphate	Fe_2S_3 iron (III) sulfide	$\text{Zn}(\text{HS})_2$ Zinc hydrogen sulfide	Ag_2SO_3 silver sulfite
$\text{Pb}_3(\text{PO}_4)_4$ lead (IV) phosphate	$\text{Zr}(\text{OH})_4$ Zirconium (IV) hydroxide	Ag_2S silver sulfide	Ag_2SO_4 silver sulfate
K_3N potassium nitride	ZrPO_4 Zirconium (III) phosphate	Li_2O lithium oxide	$\text{Ag}_2\text{S}_2\text{O}_3$ silver thiosulfate

I one
 II two
 III three
 IV four
 V five

V five
 VI six

Name _____

ANSWERS

HR. _____

In the table below, fill in the formula of the ionic compound below its name:

Zinc sulfate $ZnSO_4$	Cobalt (II) carbide Co_2C	Silver selenide Ag_2Se	Ammonium sulfide $(NH_4)_2S$
Lead (II) nitrate $Pb(NO_3)_2$	Silver oxalate $Ag_2C_2O_4$	Lead (IV) oxide PbO_2	Magnesium oxide MgO
Copper (I) sulfate Cu_2SO_4	Copper (II) sulfite $CuSO_3$	Sodium bicarbonate $NaHCO_3$	Strontium hypochlorite $Sr(ClO)_2$
Iron (III) oxide Fe_2O_3	Copper (I) chromate Cu_2CrO_4 (one)	Tin (II) sulfate $SnSO_4$	Potassium bisulfate $KHSO_4$
Cadmium Chlorite $Cd(ClO_2)_2$	Mercury (I) sulfite Hg	Potassium bromide KBr	Aluminum oxide Al_2O_3
Tin (IV) carbonate $Sn(CO_3)_2$	Tin (II) bicarbonate $Sn(HCO_3)_2$	Calcium phosphate $Ca_3(PO_4)_2$	Iron (III) hydroxide $Fe(OH)_3$
Sodium hydroxide $NaOH$	Potassium hydroxide KOH	Iron (II) hydroxide $Fe(OH)_2$	Titanium (III) sulfate $Ti_2(SO_4)_3$
Manganese (IV) oxide MnO_2	Calcium fluoride CaF_2	Iron (III) sulfite $Fe_2(SO_3)_3$	Iron (II) sulfite $Fe(SO_3)$ <small>parentheses not required</small>
Ammonium nitrate NH_4NO_3	Chromium (III) oxide Cr_2O_3	Chromium (II) acetate $Cr(CH_3COO)_2$	Silver phosphate Ag_3PO_4
Molybdenum (VI) chlorite $Mo(ClO_2)_6$	Potassium permanganate $KMnO_4$	Nickel (II) formate $Ni(HCOO)_2$	Lead (IV) oxalate $Pb(C_2O_4)_2$
Zinc carbonate $ZnCO_3$	Lead (II) thiocyanate $Pb(SCN)_2$	Cobalt (III) chromate $Co_2(CrO_4)_3$	Mercury (I) dichromate $Hg_2Cr_2O_7$