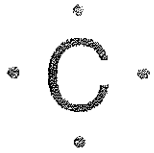
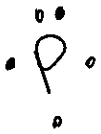
Science 10 Compounds Work booklet

Part 1: Ionic Compounds

1. Complete the following table by drawing the electron dot diagram for each element. The first row is completed as an example.

Name of element	Electron dot diagram	Name of element	Electron dot diagram
carbon		magnesium	
oxygen		phosphorus	
lithium		selenium	
chlorine		bromine	
strontium		radon	
sodium		francium	

5. Draw the missing electron dot diagrams in the following table. Refer to the periodic table as necessary.

H						He:
Li	Be	B	C	N	O	F:	Ne:
Na	Mg	Al	Si	P	S	Cl:	Ar:
K	Ca						

6. What feature of helium's energy levels justifies placing its two valence electrons in a pair? (See the table above.)

Helium only has 2e⁻ and the first energy level can only hold 2e⁻. Therefore He ve⁻ shell/orbit IS full meaning that it is stable.

Define the following

Ion: the result of an atom that has lost or gained electron(s)

Cation: positive ion; metals become cations by loosing e⁻

Anion: negative ion; non-metals become anions by gaining e⁻

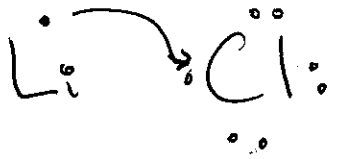
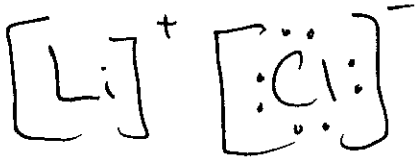
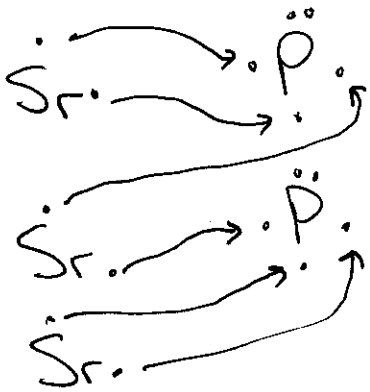
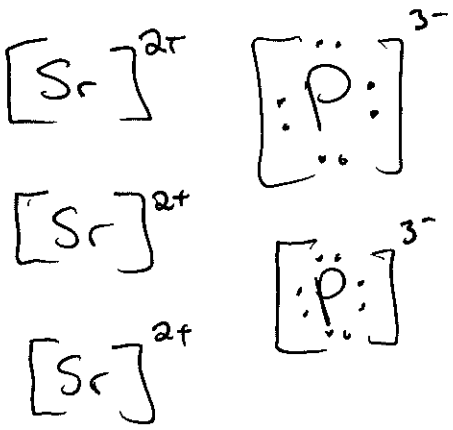
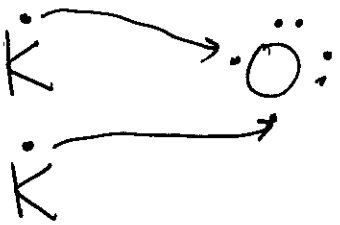
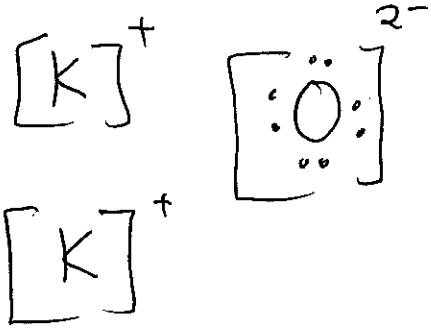
Ionic bond: the attraction between the positive charge of a cation and negative charge of anion.

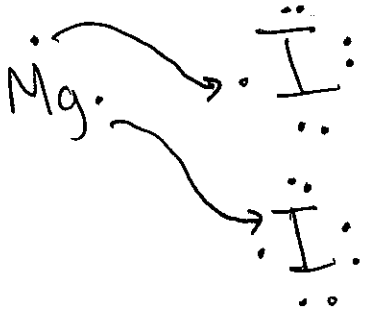
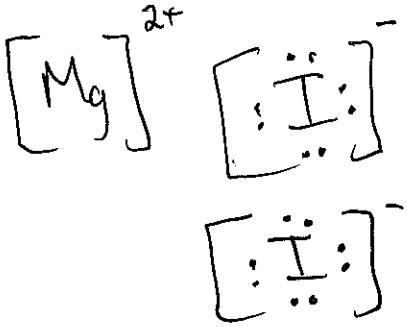
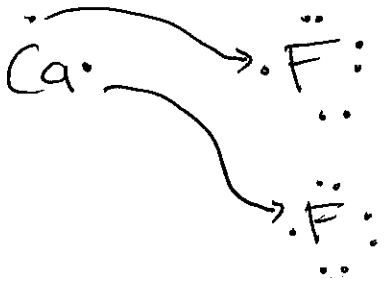
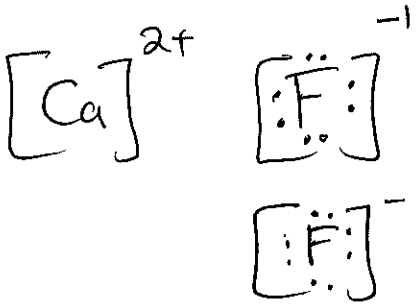
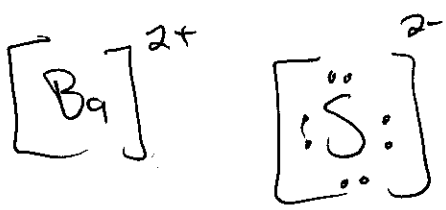
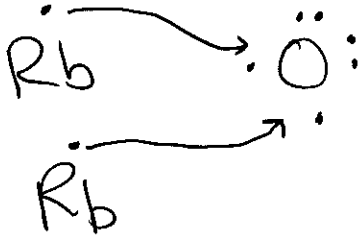
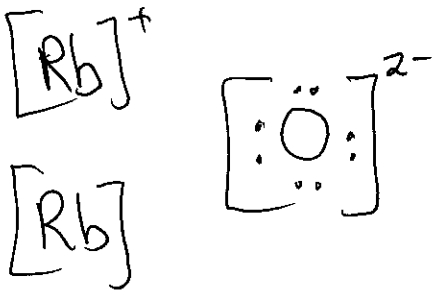
Ionic compound: the result of a cation + anion bonded together by an ionic bond.

How to name an ionic compound (do this after next lesson):

1st name - cation

2nd name - anion with -ide at end.

metal atom & non-metal atom	Electron dot diagram showing exchange of electrons	Electron dot diagram of new ions formed (include the charges)	New Ionic compound formed
lithium & chlorine			LiCl lithium chloride
strontium + phosphorus			strontium phosphide
potassium & oxygen			K_2O potassium oxide.

magnesium & iodine			MgI_2 magnesium iodide
calcium + fluorine			CaF_2 calcium floride
barium & sulfur			BaS barium sulfide
Rubidium + oxygen			Rb_2O rubidium oxide.

Science IVI – Chemistry
Ch. 2.2

Name: KEY.

Practice Problems- Part A: Binary Ionic Compounds		
	lithium chloride	LiCl
2.	potassium bromide	KBr
3.	calcium chloride	$CaCl_2$
4.	magnesium oxide	MgO
5.	sodium fluoride Na^+ F^-	NaF
6.	magnesium fluoride Mg^{2+} F^-	MgF_2
7.	barium bromide Ba^{2+} Br^-	$BaBr_2$
8.	aluminum chloride Al^{3+} Cl^-	$AlCl_3$
9.	potassium fluoride	KF
10.	potassium oxide	K_2O
11.	calcium oxide	CaO
12.	beryllium fluoride	BeF_2
13.	lithium bromide Li^+ Br^-	LiBr
14.	magnesium sulfide Mg^{2+} S^{2-}	MgS
15.	potassium nitride K^+ N^{3-}	K_3N
16.	aluminum oxide Al^{3+} O^{2-}	Al_2O_3

Science IV – Chemistry
Ch. 2.2

Name: _____

Practice Problems- Part B: Stock System		
1.	iron (II) chloride	$FeCl_2$ $Fe^{2+}Cl^-$
2.	iron (II) oxide	FeO Fe^{2+} O^{2-}
3.	iron (III) oxide	Fe_2O_3 Fe^{3+} O^{2-}
4.	iron (III) bromide	$FeBr_3$ Fe^{3+} Br^-
5.	actinium (III) oxide	Ac_2O_3 Ac^{3+} O^{2-}
6.	copper (II) chloride	$CuCl_2$ Cu^{2+} Cl^-
7.	gold (III) chloride	$AuCl_3$ Au^{3+} Cl^-
8.	lead (IV) oxide Pb^{4+} O^{2-} Pb_2O_4	PbO_2
9.	nickel (III) bromide Ni^{3+} Br^-	$NiBr_3$
10.	colbalt (II)chloride Co^{2+} Cl^-	$CoCl_2$
11.	chromium (III)oxide Cr^{3+} O^{2-}	Cr_2O_3
12.	molybdenum(IV)chloride Mo^{4+} Cl^-	$MoCl_4$
13.	gold(II)sulfide Au^{2+} S^{2-}	AuS
14.	palladium(III)phosphide Pd^{3+} P^{3-}	PdP

Name: _____

Part C: Polyatomic Ions		
1.	calcium hydroxide Ca^{2+} OH^-	$Ca(OH)_2$
2.	potassium chlorate K^+ ClO_3^-	$KClO_3$
3.	calcium sulfite Ca^{2+} SO_3^{2-}	$CaSO_3$
4.	copper (II) hydroxide	$Cu(OH)_2$ Ca^{2+} OH^-
5.	sodium nitrate	$NaNO_3$ Na^+ NO_3^-
6.	potassium phosphate	K_3PO_4 K^+ PO_4^{3-}
7.	magnesium sulfate Mg^{2+} SO_4^{2-}	$MgSO_4$
8.	potassium carbonate K^+ CO_3^{2-}	K_2CO_3
9.	ammonium sulfate NH_4^+ SO_4^{2-}	$(NH_4)_2SO_4$
10.	sodium hypochlorite	NaClO Na^+ ClO^-
11.	cobalt (II) nitrate.	$Co(NO_3)_2$ Co^{2+} NO_3^-

Chemistry 20- Science 10 Review
Review Unit Practice
Mrs. Aitken

Review Practice

Practice ALL

Name: KEY

Name that ***ionic*** compound:

1	strontium sulfide.	SrS
2	magnesium iodide	MgI_2
3	zinc chloride	$ZnCl_2$
4	silver nitride	Ag_3N
5	strontium fluoride	SrF_2
6	scandium phosphide.	ScP
7	actinium oxide.	Ac_2O_3
8	potassium carbonate	K_2CO_3
9	gold (III) chloride.	$AuCl_3$
10	cobalt (II) nitrate.	$Co(NO_3)_2$
11	nickel (III) bromide	$NiBr_3$
12	potassium phosphate.	K_3PO_4
13	copper (II) chloride	$CuCl_2$
14	ammonium sulfate	$(NH_4)_2SO_4$
15	sodium hypochlorite.	NaClO