1) a) Ag b) O c) H d) C
e) Fe f) N g) Mg h) K

2) a) sodium b) fluorine c) nickel d) zinc
e) neon f) helium g) calcium h) chlorine

3) a) Si is the symbol for the element silicon, SI is a molecule that contains both sulfur and iodine. This is why it is so important to keep an eye on capital letters versus lowercase letters.

b) Pb is the symbol for the element lead. PB is a molecule that contains phosphorous and boron (or peanut butter).

4) Metals like to give up electrons in order to get a full valence shell. Losing electrons leads to positive charges. Nonmetals like to gain electrons in order to get a full valence shell. Additional electrons lead to a negative charge. Remember, # of p^+ - # of e^- = charge and # of protons does not change for individual atoms.

5) a) Group 1A (IA) is the first column, so it will lose 1 e^- to get a full shell instead of gaining $7e^-$.
b) Group 2A (IIA) is the second column, so it will lose 2 e^- to get a full shell instead of gaining $6e^-$.
c) Group 6A (VIA) is 2 columns from the noble gases, so it will gain 2 e^- to get a full shell instead of losing $6e^-$.
d) Group 7A (VIIA) is 1 column from the noble gases, so it will gain 1 e^- to get a full shell instead of losing $7e^-$.

6) a) 1 b) 1 c) 2 d) 2 e) 3
f) 4 g) 5 h) 5 i) 6 j) 7

7) a) must lose 2
b) must gain 2
c) 0, it is already a noble gas
d) chloride ion already has a noble gas electron structure. It is an ion because it picked up 1 e^- to fill its valence shell
e) must gain 3
f) must lose 1

8) Magnesium has only one type of charge, a +2. Copper can have one of two different charges, a +1 OR a +2. The roman numeral in copper (II) chloride is to indicate which of the two charges the copper ion has in this case (whereas copper (I) chloride would indicate a +1 charge on the copper). Because Mg always has a +2 charge, there is no need to indicate what the charge is. The roman numerals are only used for elements that can form different ions.

9)

	Br^-	O^{2-}	NO_3^-	PO_4^{3-}	CO_3^{-2}
NH_4^+	NH_4Br	$(NH_4)_2O$	NH_4NO_3	$(NH_4)_3PO_4$	$(NH_4)_2CO_3$
Mg^{2+}	$MgBr_2$	MgO	$Mg(NO_3)_2$	$Mg_3(PO_4)_2$	$MgCO_3$
Bi^{5+}	$BiBr_5$	Bi_2O_5	$Bi(NO_3)_5$	$Bi_3(PO_4)_5$	$Bi_2(CO_3)_5$
Sn^{4+}	$SnBr_4$	SnO_2	$Sn(NO_3)_4$	$Sn_3(PO_4)_4$	$Sn(CO_3)_2$
Al^{3+}	$AlBr_3$	Al_2O_3	$Al(NO_3)_3$	$AlPO_4$	$Al_2(CO_3)_3$

10) a) Ag_2SO_3 b) $CoBr_2$ c) $Sn(OH)_2$ d) $Al_2(SO_4)_3$ e) MnF_2
f) $(NH_4)_2CO_3$ g) Cr_2O_3 h) Na_2CrO_4 i) $Mg(OH)_2$ j) $Ni(C_2H_3O_2)_2$
k) $Ca(ClO_3)_2$ l) $Pb(IO_3)_2$ m) $Zn(OH)_2$ n) $CuCl_2$ o) $Ba(NO_2)_2$
p) $KMnO_4$ q) Na_2O_2 r) $FeSO_4$ s) $K_2Cr_2O_7$ t) $Bi_2(CrO_4)_5$
u) $NaClO$ v) $As_3(CO_3)_5$ w) $Cr_2(SO_3)_3$ x) $Sb_2(SO_4)_3$ y) $Li_2C_2O_4$

11) a) zinc sulfate b) mercury (II) chloride c) copper (II) carbonate
d) cadmium nitrate e) aluminum acetate f) cobalt (II) fluoride
g) chromium (III) chlorate h) silver phosphate i) nickel (II) sulfide
j) barium chromate k) manganese (IV) selenate l) arsenic (III) sulfite
m) tin (II) nitrite n) iron (III) bromide o) potassium bicarbonate (OR hydrogen carbonate)
p) bismuth (III) arsenate q) iron (III) bromate r) ammonium hydrogen phosphate
s) rubidium hypochlorite t) potassium permanganate