

7. Ionic Compounds typically contain metals and nonmetals

(though they could contain only non-metals if the cation is ammonium ion; NH_4^+ .)

The metals lose electrons to form cations, the nonmetals gain electrons to form anions,

and then the cations and anions are attracted to each other and bond together in a crystal lattice.

Covalent compounds typically contain only nonmetals.

The nonmetals share electrons in order to bond together.

For each compound below,

-Indicate whether the compound is ionic or covalent

- Indicate what's happening with the electrons:

Which element(s) will lose, gain, or share electrons in order to form the compound?

NaCl	<u>Ionic</u>	<u>Na loses e⁻, Cl gains e⁻</u>
BrCl	<u>Covalent</u>	<u>Br and Cl share e⁻</u>
BN	<u>covalent</u>	<u>B and N share e⁻</u>
BiN	<u>Ionic</u>	<u>Bi loses e⁻, N gains e⁻</u>
MgF ₂	<u>Ionic</u>	<u>Mg loses e⁻, F gains e⁻</u>
SBr ₄	<u>Covalent</u>	<u>S and Br share e⁻</u>
CO ₂	<u>Covalent</u>	<u>C and O share e⁻</u>
PbCl ₄	<u>Ionic</u>	<u>Pb loses e⁻, Cl gains e⁻</u>
P ₂ O ₅	<u>covalent</u>	<u>P and O share e⁻</u>
Al ₂ S ₃	<u>Ionic</u>	<u>Al loses e⁻, S gains e⁻</u>
SiO ₂	<u>Covalent</u>	<u>Si and O share e⁻</u>

8. Consider the following data for the three isotopes of magnesium:

Isotope	Mass (amu):	Natural Abundance	Number of protons	Number of neutrons
²⁴ Mg	23.985	78.99 %	<u>12</u>	<u>12</u>
²⁵ Mg	24.986	10.00 %	<u>12</u>	<u>13</u>
²⁶ Mg	25.983	<u>11.01</u>	<u>12</u>	<u>14</u>

a. Fill in all blanks in the above chart.

b. Use the data given to calculate the atomic mass of magnesium:

$$(0.7899)(23.985) + (0.1000)(24.986) + (0.1101)(25.983) = 24.3051 \rightarrow \boxed{24.31 \text{ amu}}$$

9. Formula Writing and Naming Practice! Fill in the missing name/formula for each compound.

chromium III phosphide	<u>CrP</u>
lead II phosphate	<u>Pb₃(PO₄)₂</u>
ferrous cyanide	<u>Fe(CN)₂</u>
ferric cyanate	<u>Fe(OCN)₃</u>
MnS ₂ O ₃	<u>manganese (II) thiosulfate</u>
Mn ₂ (S ₂ O ₃) ₃	<u>manganese (III) thiosulfate</u>
ZnS ₂ O ₃	<u>zinc thiosulfate</u>
Iron III chromate	<u>Fe₂(CrO₄)₃</u>
ammonium carbonate	<u>(NH₄)₂CO₃</u>
gold (I) arsenate	<u>Au₃AsO₄</u>
Tin (IV) sulfate	<u>Sn(SO₄)₂</u>

copper II phosphate	<u>Cu₃(PO₄)₂</u>
Lithium carbonate	<u>Li₂CO₃</u>
Bismuth chlorite	<u>Bi(ClO₂)₃</u>
Lead II carbonate	<u>PbCO₃</u>
aluminum bicarbonate	<u>Al(HCO₃)₃</u>
CrBO ₃	<u>Chromium(III) borate</u>
Sn ₃ (PO ₄) ₄	<u>tin(IV) phosphate</u>
Sn ₃ (PO ₄) ₂	<u>tin(II) phosphate</u>
AlPO ₄	<u>aluminum phosphate</u>
FePO ₄	<u>iron (II) phosphate</u>
KMnO ₄	<u>potassium permanganate</u>

#8 and #9 are optional.
Extra practice for the Quiz Friday answers are posted on website