

WORKSHEET – Multivalent Metal Ions

Name: _____ Date: _____ Block: _____

Complete the chart. Use the back of your periodic table to find the polyatomic (or radical) ions.

Name	Ions	Formula
Chromium (II) chloride	Cr^{2+} Cl^{-}	CrCl_2
Chromium (III) chloride	Cr^{3+} Cl^{-}	CrCl_3
Copper (I) sulphide	Cu^{+} S^{-2}	Cu_2S
Iron (II) phosphide	Fe^{2+} P^{-3}	Fe_3P_2
Iron (III) phosphide	Fe^{3+} P^{-3}	FeP
Manganese (II) oxide	Mn^{2+} O^{-2}	MnO
Manganese (IV) oxide	Mn^{+4} O^{-2}	MnO_2
Tin (II) nitride	Sn^{2+} N^{-3}	Sn_3N_2
Tin (IV) nitride	Sn^{+4} N^{-3}	Sn_3N_4
Lead (IV) chloride	Pb^{4+} Cl^{-}	PbCl_4

Explain how you:

- a) Write the formula for a compound that has a multivalent metal ion. **Write the metal ion. The Roman numeral in the brackets indicates what the ion charge on the metal ion. Write the non-metal ion. Criss-cross.**

Chapter 3 – Ionic Bonds

Science 9

Complete the chart. Use the back of your periodic table to find the polyatomic (or radical) ions.

Formula	Ions	Name
CrBr ₂	Cr ⁺² Br ⁻	Chromium(II) bromide
CrBr ₃	Cr ⁺³ Br ⁻	chromium (III) bromide
FeI ₂	Fe ⁺² I ⁻	iron (II) iodide
FeI ₃	Fe ⁺³ I ⁻	iron (III) iodide
PbS	Pb ⁺² S ⁻²	lead (II) sulfide
PbF ₄	Pb ⁺⁴ F ⁻	lead (IV) fluoride
Fe ₂ O ₃	Fe ⁺³ O ⁻²	Iron(III) oxide
Hg ₃ P ₂	Hg ⁺² P ⁻³	mercury (II) phosphide
MnS	Mn ⁺² S ⁻²	manganese(II) sulfide
MnS ₂	Mn ⁺⁴ S ⁻²	manganese(IV) sulfide

Explain how you:

a) Name a compound that includes a multivalent metal ion. **Write the metal name first. To indicate which ion you are using, put the ion charge number as a Roman numeral in brackets after the metal name. Write the non-metal name next, changing the ending to "ide".**