

Name: _____

Blk: _____ Date: _____

Science 9
Names and Formulas of Ionic Compounds Continued

Steps for writing formulas of **ionic compounds with multivalent metals:**

Steps	Example 1: Iron (III) sulphide
1. Identify each ion and its appropriate charge ***The number in brackets tells us the charge on the metal	Iron (III) = Fe³⁺ Sulphide = S²⁻
2. Drop the (+) and (-) from the ion charge and CRISS-CROSS the numbers, writing them as subscripts (or use ratio method)	Fe³⁺ S²⁻ Fe ₂ S ₃
3. Write the Final formula	Fe₂S₃
4. (if possible) Remember to Reduce subscripts: divide both subscripts by highest common factor	
5. Remember: Drop any 1's from the final formula	Fe₂S₃

Example 2: Lead (II) oxide

1. Lead (II) = Pb²⁺ and Oxide = O²⁻
2. Pb²⁺ O²⁻

3. PbO

Example 3: Tin (IV) Oxide

1. Tin (IV) = Sn⁴⁺ and Oxide = O²⁻
2. Sn⁴⁺ O²⁻

3. Sn₂O₄ ... reduce

4. SnO₂

Now do Practice Problems page 89 #1 a – n

Steps for writing the **name of ionic compounds with multivalent metals**:

Steps	Example 1. Cu ₃ P
1. Identify the metal and list the possible ion charges	<u>Cu¹⁺</u> or <u>Cu²⁺</u>
2. Identify the charge on the non-metal ion	<u>P³⁻</u>
3. Write the names of the atoms - Separate metal and non-metal with brackets	<u>Copper () phosphorus</u> <u>Copper () phosphide</u>
4. UN-CRISS CROSS (from subscript to charge position) to find the charge (or use ratios)	<u>Cu₃P</u>
5. Ensure charge of non-metal matches periodic table: Only ONE possible charge	<u>P³⁻</u>
6. If non-metal charge does NOT match, multiply by lowest common multiple to match the charge on periodic table -apply this to the metal too	
7. Write charge on metal as roman numeral inside brackets	<u>Copper (I) phosphide</u>

Example 2. MnO

1. Mn²⁺ or Mn³⁺ or Mn⁴⁺
2. O²⁻
3. Maganese () oxide

MnO - Does not match PT therefore x2

4. Manganese (II) oxide

Example 3. SnO₂

1. Sn⁴⁺ or Sn²⁺
2. O²⁻
3. Tin () oxide

SnO₂ - Does not match PT therefore x2

4. Tin (IV) oxide

Now do Practice Problems page 90 #1 a-o

Name: _____

Blk: _____ Date: _____

Science 9
Names and Formulas of Ionic Compounds Continued

Steps for writing formulas of _____
_____ :

Steps	Example 1: Iron (III) sulphide
1. Identify each _____ and its appropriate _____ ***the number in brackets tells us the charge on the metal	_____ = _____ _____ = _____
2. Drop the (+) and (-) from the ion charge and <u>CRISS-CROSS</u> the numbers, writing them as subscripts (or use ratio method)	
3. Write the final formula	
4. (If possible) remember to _____ subscripts: divide both subscripts by the highest common factor	
5. Remember: _____ from the final formula	_____

Example 2: Lead (II) oxide

1.

2.

3.

Example 3: Iron (III) nitride

1.

2.

3.

4.

Now do Practice Problems page 89 #1 a – n

Steps for writing the **name of ionic compounds with mono or multivalent metals and polyatomic ions:**

Steps	Example 1. Na ₃ PO ₄
1. Identify the _____ and list the possible _____	or
2. Identify the _____ on the _____ ion	
3. Write the names of the atoms - _____ metal and non-metal with brackets	
4. _____ (from subscript to charge position) to find the charge (or use ratios)	
5. Ensure charge of _____ periodic table: Only ONE possible charge	
6. If non-metal charge does NOT match, multiply by _____ to match the charge on periodic table -apply this to the _____ too	
7. Write charge on metal as _____ inside _____	_____

Example 2. Mn(OH)₂

- 1.
- 2.
- 3.

4.

Example 3. Sn(CO₃)₂

- 1.
- 2.
- 3.

4.

Now do Practice Problems page 91 #1 a-j