

# Writing Names and Formulas

**Goal** • Record your answers to Think & Link Investigation 5-C: Writing Names and Formulas of Binary Ionic Compounds.

## What to Do

Answer the following questions as you work through Think & Link Investigation 5-C: Writing Names and Formulas of Binary Ionic Compounds.

1. Identify the binary compounds below.

- (a) HCl \_\_\_\_\_  
 (b) SO<sub>3</sub> \_\_\_\_\_  
 (c) MgCO<sub>3</sub> \_\_\_\_\_  
 (d) hydrogen sulfide \_\_\_\_\_  
 (e) copper sulfate \_\_\_\_\_

2. (a) Which types of elements combine to form ionic compounds?

\_\_\_\_\_

(b) Which types of elements combine to form molecular compounds?

\_\_\_\_\_

3. Identify each compound as ionic or molecular.

- (a) sodium sulfide \_\_\_\_\_  
 (b) PCl<sub>3</sub> \_\_\_\_\_  
 (c) nitrogen dioxide \_\_\_\_\_  
 (d) zinc oxide \_\_\_\_\_  
 (e) MgI<sub>2</sub> \_\_\_\_\_

4. Complete the following table.

Element		Anion	
fluorine	F	fluoride	F <sup>-</sup>
		chloride	
		bromide	
		oxide	
		sulfide	
		nitride	

5. Which of the following formulas are correct?

Rewrite the formulas that are not correct to make them correct.

- (a) LiO \_\_\_\_\_  
 (b) MgO \_\_\_\_\_  
 (c) K<sub>2</sub>S \_\_\_\_\_  
 (d) AlBr<sub>3</sub> \_\_\_\_\_  
 (e) KN<sub>3</sub> \_\_\_\_\_

7. Use the cross-over method to write the formula for each compound.

- (a) beryllium fluoride \_\_\_\_\_  
 (b) sodium nitride \_\_\_\_\_  
 (c) calcium sulfide \_\_\_\_\_  
 (d) aluminum chloride \_\_\_\_\_  
 (e) lithium oxide \_\_\_\_\_  
 (f) magnesium nitride \_\_\_\_\_  
 (g) gallium sulfide \_\_\_\_\_  
 (h) barium bromide \_\_\_\_\_

9. Use the reverse cross-over method to find the charge on the cation in each compound.

- (a) Cu<sub>2</sub>S \_\_\_\_\_  
 (b) Fe<sub>2</sub>O<sub>3</sub> \_\_\_\_\_  
 (c) PbO<sub>2</sub> \_\_\_\_\_  
 (d) NiCl<sub>2</sub> \_\_\_\_\_  
 (e) CrN \_\_\_\_\_  
 (f) HgO \_\_\_\_\_

# Writing Names and Formulas

(continued)

10. Complete the following table using the classical system.

Element	Latin name	Ion with lower charge		Ion with higher charge	
iron	ferrum	ferrous	Fe <sup>2+</sup>	ferric	Fe <sup>3+</sup>
	cuprum		Cu <sup>+</sup>		Cu <sup>2+</sup>
	plumbum		Pb <sup>2+</sup>		Pb <sup>4+</sup>

11. Complete the following table using the Stock system.

Formula	Classical system	Stock system
FeCl <sub>3</sub>	ferric chloride	
FeO	ferrous oxide	
Cu <sub>2</sub> S	cuprous sulfide	
PbO <sub>2</sub>	plumbic oxide	

13. Write the chemical formula for each compound.

- (a) copper(I) oxide \_\_\_\_\_
- (b) lead(IV) bromide \_\_\_\_\_
- (c) iron(III) sulfide \_\_\_\_\_
- (d) nickel(III) fluoride \_\_\_\_\_
- (e) manganese(IV) fluoride \_\_\_\_\_