Objectives

- Apply the rules for naming and writing formulas for binary ionic compounds
- Apply the rules for naming and writing formulas for ternary ionic compounds

Key Terms

- binary compounds
- ternary compounds

Part A Completion

Use this completion exercise to check your understanding of the concepts and terms that are introduced in this section. Each blank can be completed with a term, short phrase, or number.

1. Binary ionic compounds are named by writing the name of the 1 followed by the name of the 2. Names of binary compounds end in 3. For example, NaI is 4.

2. When a cation has more than one ionic charge, a 5 is used in the name. Ternary compounds contain at least one 6 ion.

3. Ternary compounds whose names end in -ite or -ate contain a 7 ion that includes 8. In writing the formula of an ionic compound, the net ionic charge must be 9.

Part B True-False

Classify each of these statements as always true, AT; sometimes true, ST; or never true, NT.

10. The systematic name for baking soda (NaHCO₃) is sodium bicarbonate.

11. In writing a formula for an ionic compound, the net ionic charge of the formula must be zero.

12. Anions that contain oxygen end in -ite or -ate.

13. The cation name is placed first when naming ionic compounds.
Part C Matching
Match each description in Column B to the correct term in Column A.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. binary compounds</td>
<td>a. ionic compounds composed of three elements</td>
</tr>
<tr>
<td>15. ternary compounds</td>
<td>b. ions that consist of a single atom</td>
</tr>
<tr>
<td>16. monatomic ions</td>
<td>c. ionic compounds composed of two elements</td>
</tr>
<tr>
<td>17. polyatomic ions</td>
<td>d. Group B metals, many of which have more than one common ionic charge</td>
</tr>
<tr>
<td>18. transition metals</td>
<td>e. ions that consist of more than one atom</td>
</tr>
</tbody>
</table>

Part D Questions and Problems
Answer the following in the space provided.

19. Name the following compounds and tell what type of compound they are (binary ionic or ternary ionic).
   a. FeBr₃
      ____________________________________________________________
   b. KOH
      ____________________________________________________________
   c. Na₂Cr₂O₇
      ____________________________________________________________

20. Write the formulas for the following compounds.
   a. sodium chlorate
      ____________________________________________________________
   b. lead(II) phosphate
      ____________________________________________________________
   c. magnesium hydrogen carbonate
      ____________________________________________________________