

### 3 • What Happens When Chemicals Are Put Together?

#### Answers WRITING IONIC COMPOUNDS

Ionic compounds are formed from a positive ion (cation) and a negative ion (anion).

The positive ion is always written first. • The resulting compound must be electrically neutral.

Use parentheses when you need two or more polyatomic ions in a formula.

Write a compound with the specified number of ions:

1.	2 $\text{NH}_4^+$ ions	1 $\text{SO}_4^{2-}$ ion	<b><math>(\text{NH}_4)_2\text{SO}_4</math></b>
2.	2 $\text{Al}^{3+}$ ions	3 $\text{O}^{2-}$ ions	<b><math>\text{Al}_2\text{O}_3</math></b>
3.	1 $\text{Ca}^{2+}$ ion	2 $\text{C}_2\text{H}_3\text{O}_2^-$ ions	<b><math>\text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2</math></b>
4.	1 $\text{Fe}^{3+}$ ion	3 $\text{NO}_3^-$ ions	<b><math>\text{Fe}(\text{NO}_3)_3</math></b>
5.	1 $\text{Hg}^{2+}$ ion	2 $\text{OH}^-$ ions	<b><math>\text{Hg}(\text{OH})_2</math></b>

Determine the number of ions needed for the compound and then write the formula of the compound:

#	# Cations	Cation	# Anions	Anion	Formula
6.	<b>3</b>	$\text{NH}_4^+$	<b>1</b>	$\text{PO}_4^{3-}$	<b><math>(\text{NH}_4)_3\text{PO}_4</math></b>
7.	<b>1</b>	$\text{Ba}^{2+}$	<b>2</b>	$\text{NO}_3^-$	<b><math>\text{Ba}(\text{NO}_3)_2</math></b>
8.	<b>2</b>	$\text{Cu}^+$	<b>1</b>	$\text{S}^{2-}$	<b><math>\text{Cu}_2\text{S}</math></b>
9.	<b>2</b>	$\text{Al}^{3+}$	<b>3</b>	$\text{CO}_3^{2-}$	<b><math>\text{Al}_2(\text{CO}_3)_3</math></b>
10.	<b>1</b>	$\text{Sr}^{2+}$	<b>2</b>	$\text{OH}^-$	<b><math>\text{Sr}(\text{OH})_2</math></b>

Write the compound formed from the two specified ions:

	$\text{I}^-$	$\text{OH}^-$	$\text{S}^{2-}$	$\text{CrO}_4^{2-}$	$\text{PO}_4^{3-}$
$\text{K}^+$	<b><math>\text{KI}</math></b>	<b><math>\text{KOH}</math></b>	<b><math>\text{K}_2\text{S}</math></b>	<b><math>\text{K}_2\text{CrO}_4</math></b>	<b><math>\text{K}_3\text{PO}_4</math></b>
$\text{NH}_4^+$	<b><math>\text{NH}_4\text{I}</math></b>	<b><math>\text{NH}_4\text{OH}</math></b>	<b><math>(\text{NH}_4)_2\text{S}</math></b>	<b><math>(\text{NH}_4)_2\text{CrO}_4</math></b>	<b><math>(\text{NH}_4)_3\text{PO}_4</math></b>
$\text{Mg}^{2+}$	<b><math>\text{MgI}_2</math></b>	<b><math>\text{Mg}(\text{OH})_2</math></b>	<b><math>\text{MgS}</math></b>	<b><math>\text{MgCrO}_4</math></b>	<b><math>\text{Mg}_3(\text{PO}_4)_2</math></b>
$\text{Al}^{3+}$	<b><math>\text{AlI}_3</math></b>	<b><math>\text{Al}(\text{OH})_3</math></b>	<b><math>\text{Al}_2\text{S}_3</math></b>	<b><math>\text{Al}_2(\text{CrO}_4)_3</math></b>	<b><math>\text{AlPO}_4</math></b>
$\text{Sn}^{4+}$	<b><math>\text{SnI}_4</math></b>	<b><math>\text{Sn}(\text{OH})_4</math></b>	<b><math>\text{SnS}_2</math></b>	<b><math>\text{Sn}(\text{CrO}_4)_2</math></b>	<b><math>\text{Sn}_3(\text{PO}_4)_4</math></b>
$\text{Cu}^{2+}$	<b><math>\text{CuI}_2</math></b>	<b><math>\text{Cu}(\text{OH})_2</math></b>	<b><math>\text{CuS}</math></b>	<b><math>\text{CuCrO}_4</math></b>	<b><math>\text{Cu}_3(\text{PO}_4)_2</math></b>