

**LESSON**

**22**

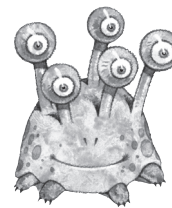
**ACTIVITY**

# Isn't It Ionic?

## Polyatomic Ions

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_



**Purpose**

To practice creating ionic compounds that contain polyatomic ions.

**Instructions**

1. Use the cards to play Ionic Grid. Keep track of your compounds and points in this table.

	<b>Cation</b>	<b>Anion</b>	<b>Chemical name</b>	<b>Chemical formula</b>	<b>Points</b>
<b>Example</b>	Mg <sup>2+</sup>	SO <sub>4</sub> <sup>2-</sup>	magnesium sulfate	MgSO <sub>4</sub>	2
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

Total:

2. Play Three-Minute Bonding. Use the table to keep track of your compounds and points. **The chemical formula must be correct in order for you to get any points.**

	Cation	Anion	Chemical name	Chemical formula	Points
<b>Example</b>	Mg <sup>2+</sup>	SO <sub>4</sub> <sup>2-</sup>	magnesium sulfate	MgSO <sub>4</sub>	2
1					
2					
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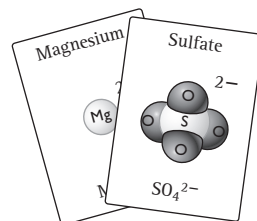
Total:

3. **Making Sense** Another common polyatomic ion is chromate, CrO<sub>4</sub><sup>2-</sup>. Write the chemical formulas of sodium chromate and calcium chromate.

## RULES FOR IONIC GRID AND THREE-MINUTE BONDING

### Game 1: Ionic Grid

1. Play in groups of four with one deck of Polyatomic Ions cards. Shuffle the deck and place all the cards face up on the table in a grid five cards high and eight cards wide.
2. Take turns forming ionic compounds with the cards. Use two, three, or four cards to create a compound. Remove the cards you used from the grid.



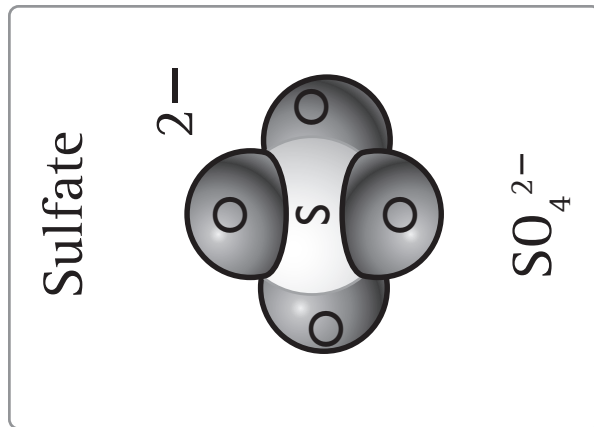
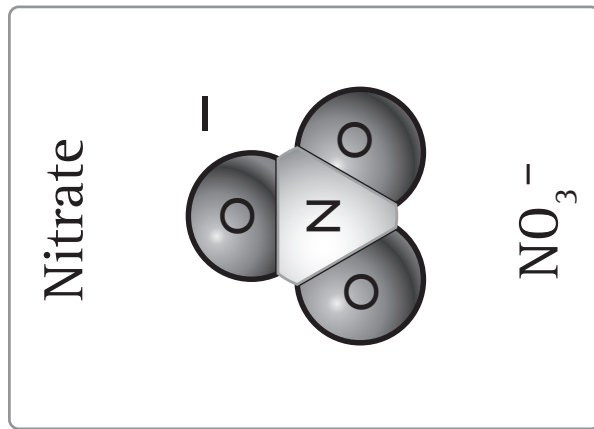
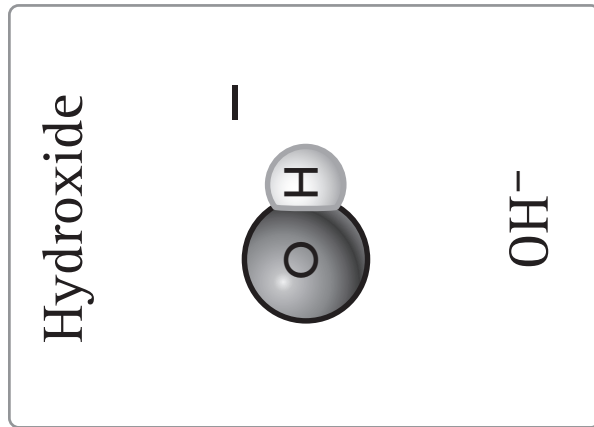
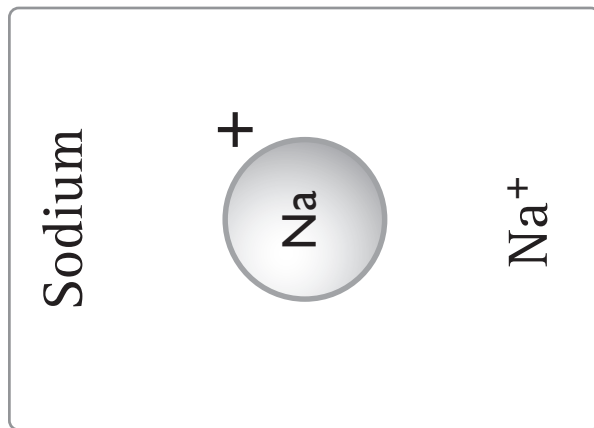
3. Say the name of your compound out loud. Write the name and the correct chemical formula of the compound on the worksheet. Earn 1 point for each card used.
4. You can challenge the chemical formula written by anyone in your group. Your teacher must settle the challenge. If the formula is written incorrectly, the compound becomes yours. If your challenge is incorrect, your opponent scores double points.
5. When you use a Wild Card, you must name a cation or an anion and identify its charge.

### Game 2: Three-Minute Bonding

1. Your teacher will hand out one Polyatomic Ions card to each student.
2. When the game begins, move around the room to find another student whose card can combine with yours to form a compound. Some compounds may require more than two people. The goal is to create as many correct compounds as possible.
3. In the table, write down the chemical formula of each compound you create.
4. At some point during the game, the teacher will yell "Switch!" and you must trade cards with whoever is closest. Once you have traded, continue creating compounds until your teacher announces that time is up.
5. At the end of the game, determine your score. Compounds made from two cards are worth 2 points, three cards are worth 3 points, and four cards are worth 4 points. (The chemical formula must be correctly written.)

## ChemCatalyst

The cards show a sodium ion and three polyatomic ions.



1. What do you think a polyatomic ion is?
2. Name three compounds formed between sodium ions and each of the three polyatomic ions. Use the rule of zero charge to write the compounds' formulas.

# Polyatomic Ions

