

# Student Exploration: Ionic Bonds

**Prior Knowledge Questions** (Do these BEFORE using the Gizmo.)

1. Nate and Clara are drawing pictures with markers. There are 8 markers in a set. Nate has 9 markers and Clara has 7. What can Nate and Clara do so that each of them has a full set?

Nate can give Clara a marker

2. Maggie is sitting at a table with Fred and Florence. Maggie has 10 markers, but Fred and Florence each have only 7 markers. How can they share markers so each has 8?

Maggie can give Fred and Florence one marker each

## Gizmo Warm-up

Just like students sharing markers, atoms sometimes share or swap electrons. By doing this, atoms form bonds. The Ionic Bonds Gizmo™ allows you to explore how **ionic bonds** form.

To begin, check that **Sodium (Na)** and **Chlorine (Cl)** are selected from the menus at right. Click **Play** (▶) to see electrons orbiting the nucleus of each atom. (Note: These atom models are simplified and not meant to be realistic.)



1. Each atom consists of a central nucleus and several **shells** that contain electrons. The outermost electrons are called **valence electrons**. (Inner electrons are not shown.)

How many valence electrons does each atom have?

Sodium: 1

Chlorine: 7

2. Click Pause (⏸). Elements can be classified as **metals** and **nonmetals**. Metals do not hold on to their valence electrons very tightly, while nonmetals hold their electrons tightly. **Electron affinity** is a measure of how tightly the valence electrons are held.

A. Try pulling an electron away from each atom. Based on this experiment, which atom is a metal?

sodium

Which is a nonmetal?

chlorine

B. Try moving an electron from the metal to the nonmetal. What happens?

The chlorine atom took the electron and added it to its outermost shell

# Student Exploration Ionic Bonds Answers Key Sheet

**J Dewey**



## **Student Exploration Ionic Bonds Answers Key Sheet:**

**Strategies for Teaching Science, Levels 6-12** Barbara Houtz, 2011-06-01 Developed for grades 6-12 this rich resource provides teachers with practical strategies to enhance science instruction. Strategies and model lessons are provided in each of the following overarching topics: inquiry and exploration, critical thinking and questioning, real world applications, integrating the content areas, and technology and assessment. Research-based information and management techniques are also provided to support teachers as they implement the strategies within this resource. This resource supports core concepts of STEM instruction. **Resources in Education**, 1993-04 **Bulletin of the Atomic Scientists**, 1986-04 The Bulletin of the Atomic Scientists is the premier public resource on scientific and technological developments that impact global security. Founded by Manhattan Project Scientists, the Bulletin's iconic Doomsday Clock stimulates solutions for a safer world.

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## Embracing the Tune of Term: An Mental Symphony within **Student Exploration Ionic Bonds Answers Key Sheet**

In some sort of taken by displays and the ceaseless chatter of immediate interaction, the melodic beauty and emotional symphony produced by the written word usually diminish in to the background, eclipsed by the constant sound and disruptions that permeate our lives. Nevertheless, nestled within the pages of **Student Exploration Ionic Bonds Answers Key Sheet** an enchanting literary value brimming with natural feelings, lies an immersive symphony waiting to be embraced. Constructed by a masterful musician of language, that charming masterpiece conducts visitors on a mental journey, well unraveling the hidden tunes and profound impact resonating within each carefully constructed phrase. Within the depths of the emotional assessment, we can investigate the book is key harmonies, analyze their enthralling writing style, and submit ourselves to the profound resonance that echoes in the depths of readers souls.

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