Week 3

The Noble Gases

IN BRIEF

★ **Noble gases** are the elements in column 0 (or 8, depending on who you're talking to) of the periodic table.

★ The noble gases are helium (He), neon (Ne), argon (Ar), krypton (Kr), xenon (Xe), and radon (Rn).

★ They're called noble gases because their outer electron shell is full, giving them no incentive to mingle with other elements to complete it.

★ According to the **octet rule,** elements want to have a full group of eight valence electrons. They'll share, steal, or shed electrons to achieve this condition.

We're beginning our up-close look at the periodic table with one of its last columns to be discovered — but the reason these so-called noble gases were so hard to pin down is exactly why they make a great starting place. If this is your first time really digging into the periodic table, you'll probably find the noble gases pretty interesting — but if you already know a little about chemistry, you may find them even *more* interesting because so much of what we're often taught about this column of the periodic table is just plain wrong. (Don't you love it when that turns out to be the case?)

Terms you should know

- ❍ monatomic gases
- ❍ nonreactive
- ❍ octet rule

❏ Read **Chapter 3.1: The Noble Gases.** Watch the video lesson for **Chapter 3: The Noble Gases.**

Comprehension Questions:

- ❍ What are noble gases?
- ❍ What are the major characteristics of noble gases?
- ❍ Explain why noble gases are almost completely nonreactive.
- ❍ What is the octet rule? How is it related to noble gases?

❏ Read **Chapter 3.2: The Noble Gases**

Comprehension Questions:

- ❍ What were some of the key discoveries that led to our current understanding of noble gases?

❏ Fill in your periodic table with **column 0.** (Include the atomic number and the element's abbreviation.)

❏ Make cards for the noble gases for your periodic card deck. *(See page 12 for instructions.)*

❏ Create your textbook pages for Week 3: The Noble Gases.