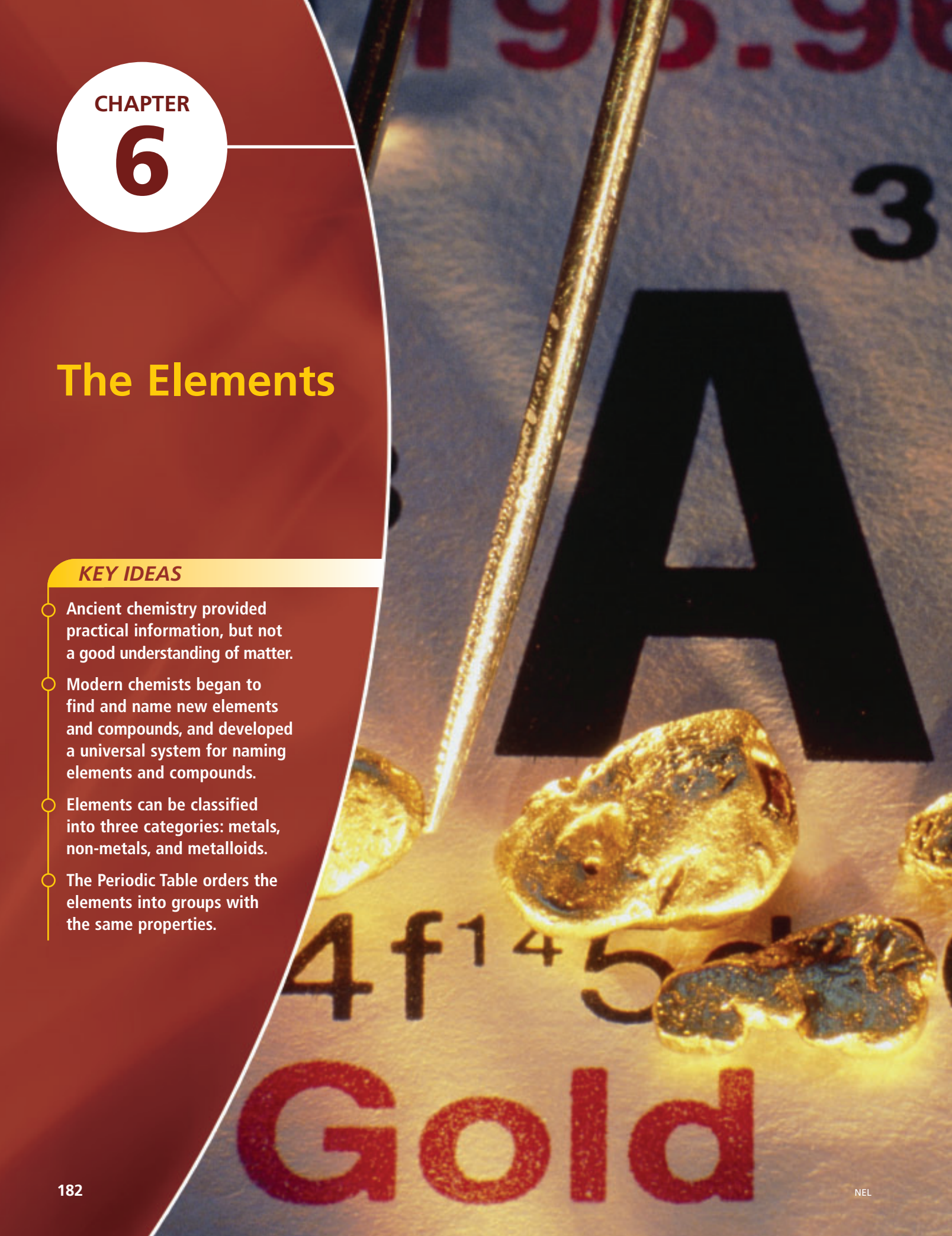
CHAPTER
6

The Elements



KEY IDEAS

- Ancient chemistry provided practical information, but not a good understanding of matter.
- Modern chemists began to find and name new elements and compounds, and developed a universal system for naming elements and compounds.
- Elements can be classified into three categories: metals, non-metals, and metalloids.
- The Periodic Table orders the elements into groups with the same properties.

Chapter Preview

Think about the different types of matter you use every day. Did you include what you use to wash your face or brush your teeth, what you had for breakfast, or what you wear or write with? Learning about matter can help us understand why three different states of water are common, why food changes when it is cooked, and why different clothing has a variety of characteristics.

Some of the materials we use every day are mixtures, some are compounds, many are elements, but all are made from elements. Elements are the basic building blocks for everything in our universe, and their number and possible combinations may seem overwhelming. Like all forms of matter, elements can be organized according to their characteristics. How does it help you when things are organized? Are there different ways to organize the same things?

This chapter will introduce you to the language of chemistry and how the elements have been classified according to their properties.

TRY THIS: Finding Elements

Skills Focus: analyzing, inferring

In this activity, you will work with a group to find out what you already know about elements.

1. In a small group, make a list of pure substances that you are familiar with. Remember that pure substances contain only a single type of particle. Don't forget to consider substances that are found in all three states of matter.

A. Analyze your list of pure substances and decide which are elements and which are compounds. How many elements did you list?

B. How do you know that the compounds you listed are not mixtures?

C. How easy do you think it is to isolate or produce an element? Explain your thinking.