

GENRE:
Nonfiction

HOW CAN YOU MAKE GOLD?

by Vicki Cobb

You can't make gold. Plain and simple. But hundreds of years ago, some people believed that you could make gold out of other metals, like iron or copper. So they mixed and stirred and heated all kinds of things. They discovered that the only way to end up with gold was to start with gold. They couldn't make gold from anything else because gold is one of the simplest materials on earth. It is an *element*.

There are ninety-two elements in nature. Maybe you already know some of them. Here are a few examples: silver, oxygen, nitrogen, hydrogen, carbon, iron, and neon. Imagine chopping up an element into smaller and smaller pieces. The smallest piece you can get of an element is an *atom*. Atoms are so incredibly tiny that it's hard to imagine how small they are. If you can imagine how many grains of sand there are on a beach, then



that's how many atoms there are in a single grain of sand! Gold is a very dense element because its atoms are packed close together.

The people who tried to make gold discovered many other elements besides gold. They also learned that elements can come together and form completely new materials. Elements are like the letters of the alphabet, which combine to make words. For example, iron can combine with oxygen in the air to form a red powder. You know this red powder as *rust*. The smallest part of rust is made up of iron and oxygen atoms. Whenever two or more atoms are combined, a *molecule* is formed. Molecules are bigger than atoms, but they are still incredibly small. Rust is made of molecules, and it is not an element. It is called a *compound*.

Elements combine to form compounds in a chemical reaction. For example, hydrogen reacts with oxygen to form water. This reaction is so strong that there is an explosion. Compounds can also react with one another to make different compounds. The science that discovered elements, compounds, and chemical reactions is called *chemistry*.

