

## In Search of Gold

Gold was discovered in the United States in January 1848. A carpenter named James Marshall was building a sawmill on the American River in Northern California when he saw something shining in the water. It was gold! Over the next two years, word of Marshall's discovery brought tens of thousands of gold seekers from all over the world to California. Gold production around the world exploded. It continued to expand when gold was discovered in Australia in 1851 and in South Africa in 1886. Today, South Africa is the world's largest gold producer.

Ores of gold can be formed in two ways. One way is *exogenetic*, or formed at Earth's surface. As in James Marshall's case, exogenetic gold ores are often found in riverbeds, streambeds, and floodplains. Gold ores can also be *endogenetic*, or formed within Earth.

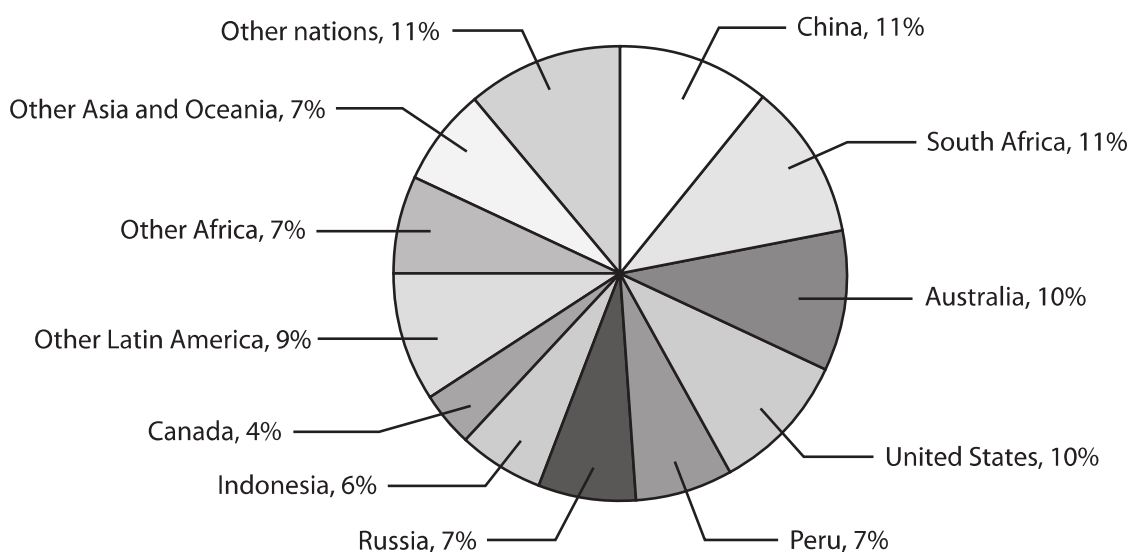
Gold mining begins after geologists have discovered a surface deposit. Large drilling machines are used to collect samples from the ground. The samples are analyzed to determine whether there is enough gold to open a mine. The first step in mining is to drill a pattern of holes in the ground near the gold deposits.

Explosives are detonated in the holes to break up the ground. Sometimes mining is done using underground methods. A tunnel is created and then blasted with explosives. In both cases, the rubble is loaded into a truck and hauled away for processing.

After several processing steps, the gold is ready for use. About 85 percent of gold is used for decoration—mostly jewelry. Gold is used in some wires and cables. Some doctors use gold for patients with arthritis or cancer. Dentists sometimes use gold to fill cavities. Gold has even been used to protect firefighters. A thin, invisible film of gold on a face mask protects the face from heat while still allowing clear vision.

Gold mining is not without problems. It has serious consequences for the environment. It uses an enormous amount of water. In Nevada, mining uses more water than all the people in the state put together! Dangerous chemicals like cyanide and mercury are used in the mining and processing of gold. They can end up in local rivers and lakes, causing sickness and even death. Cleaning up contaminated sites costs millions of dollars.

**Gold-Producing Nations, 2007**



Source: Survey 2008, GFMS Limited.