# The Allure of Gold

by ReadWorks

The Egyptians used it to create funeral masks for their pharaohs. The Incas called it the "sweat of the sun." It is used to make medals for the best athletes in the world. It symbolizes wealth and riches. Over the centuries, gold has become important to humans. The heavy metal has cultural and economic meaning for human civilizations around the world. But this wasn't always the case.

Gold was used to make jewelry thousands of years ago. Some of the oldest pieces found date before 4000 B.C. Over the centuries, other cultures developed the ability to mine gold and began to use it to buy goods and services. The Ancient Greeks used gold as a form of currency and mined the metal throughout the Middle East and the Mediterranean. The Roman Empire also learned how to mine gold. Ancient Romans built waterwheels and diverted streams of water to extract gold from rivers.

The lure of gold has had a major impact on the course of history in the United States as well. When gold was found in California in 1848, it triggered a movement called the gold rush. Thousands of settlers moved west, hoping to find gold and become rich. In total, 300,000 people came from all over the world to California during the gold rush. Before the gold rush, San Francisco was a tiny town of only 200 people. By the end of the gold rush in 1870, San Francisco's population had grown to 150,000 people. Thousands of Native Americans were displaced by the new settlers and the natural environment was dramatically transformed.

So what exactly is gold? What are the properties of this metal that has become so important to human society? Gold is a pure chemical element and its symbol on the Periodic Table is ***Au*.** The symbol, Au, comes from the Latin word for gold, *aurum*. Gold's atomic number is 79, one of the higher naturally occurring atomic number elements. Even for a metal, gold is quite heavy-over 19 times

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heavier than water.

Scientists believe that gold was formed by explosions in space. Dusts that contained metals, including gold, were spread by these explosions throughout the galaxies until they condensed into the solar system and planets where we now live. Because the core of the earth was hot and molten when the planet formed, almost all of the gold sank into the earth's core where we cannot reach it. The gold that humans now find on the surface of the earth came from asteroids that hit the earth billions of years ago.

Gold originally acquired importance to humans because of its appearance. In societies from India to Egypt, gold was used to make decorative objects and jewelry. Unlike silver and some other metals, gold does not lose its brilliance or tarnish when it is exposed to water or air. Gold is also exceptionally resistant to the effects of acid and does not corrode easily. Like other metals, gold is highly conductive of electricity. It can be used in electronics, but because it is so expensive it is rarely used. There are only two metals that are more conductive than gold, based on volume: copper and silver.

Gold is present in the planet's oceans, with significant amounts of the metal in and below the water. It is estimated that in all of the earth's seawater there are approximately 15,000 tons of gold. Although many people have tried to extract gold from the oceans, no one has been successful at recovering gold from seawater.

When it is unmixed with other metals, gold is actually quite soft and malleable. This flexibility makes it easy to use gold in many different ways. A single gram of gold can be hammered into a thin sheet that is one square meter. You can even hammer gold leaf until it is so thin, it becomes transparent.

Because gold is so soft, it is often combined with other metals to make an alloy. The rose gold or white gold that is often found in contemporary jewelry is made by combining gold with other metals including copper, silver, nickel and palladium. Pure gold is measured by weight. Scientists use another term, *karat*, to express how much gold is present when it is combined with another metal. In these circumstances, pure gold is described as 24 karat gold. When gold is mixed with other metals, it becomes 22 karat, 18 karat, 14 karat or 10 karat gold.

Historically, gold was especially easy to melt and work with because it was often found in pure nuggets. Most other metals are only found in ore-bodies-mixes of rock and metals that are more difficult to separate. Gold is also found in ore, distributed in small particles or bands inside rock. When the rock breaks down naturally, for example, due to a river or stream passing over it, the gold particles are released into the debris. In the case of the river, this means that tiny gold nuggets can be found in the sand on the riverbank. There are other nuggets and rocks that look similar to gold, most notably pyrite (also known as "Fool's Gold"). Pyrite is an iron sulfide that looks like gold and may have very small amounts of gold in it. In addition to iron, gold is often found in metal solid solutions with silver or with quartz. A total of 174,100 tons of gold have been mined throughout human history and over three-fourths of this gold has been extracted since 1910.

Most of the gold currently sold in the world comes from mining. South Africa has one of the largest gold mining economies in the world. While this has brought wealth to the country, it has also caused some problems with pollution; mine waste releases harmful acid into the environment. As mines near the surface run out of gold, miners burrow deeper under the ground. Some gold mines are as deep as three miles under the earth's surface. Once a mine is dug, the gold must be extracted from the ground, separated from the ore, and then refined into pure gold. Only at that point can it be poured

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into bars for investment or made into fine jewelry. It may seem like a lot of work, but a single ounce of gold is worth as much as $1,300. It doesn't look like gold mining will stop any time soon.

Gold has impacted, and will continue to impact, human society and history. Whether used as jewelry or currency, gold carries value. Its properties-weight, durability, malleability, rarity, and beauty-combine to make it a natural symbol of wealth and prosperity. People want gold. Its pursuit has driven economic and technological development across the ages, all over the globe, from South Africa to California and beyond. But not without cost: the pursuit of gold has negative impacts, both environmental and social. Nevertheless, this precious mineral formed in space continues to inspire us. We, like the ancient peoples who first discovered it, are touched by the allure of gold.

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