



Gold Bullion Bars

Gold has a very special place in history. It has been treasured since ancient times and simple gold ornaments are among the earliest known metal objects made by humans. Gold was so sought after that, in early times, alchemists tried to turn other metals into precious gold! Gold has affected where and how people live, and many towns have been developed by the wealth from gold mining (there are also many 'ghost towns' - when the gold supply ran out, people simply deserted the area).

Gold has featured in many myths and legends, including King Midas, King Solomon, and Jason and the Argonauts. Fairytales often mention golden objects such as eggs or harps, and most people have heard of the golden pot at the end of the rainbow. Even today, achievements are rewarded by gold medals, and we associate the word gold with greatness - as in 'golden rules' or 'good as gold'. Gold has always been, and still is, a very important metal. Its rarity and unique properties make it one of the most prized and useful metals.

PROPERTIES

- Gold is shiny and is the only yellow metal.
- Gold usually exists as a pure metal.
- Gold does not corrode or stain.
- Gold has a high melting point (1064°C).
- Gold is about 19 times heavier than water (it's nearly twice as dense as lead).
- Gold has the symbol Au (from the Roman word Aurum).
- Gold is malleable and ductile (can be beaten and drawn out into a wire).
- Gold conducts electricity.
- Gold is soft.

USES

USE	DESCRIPTION
Money	Gold has been used as coins since early times, but very few coins are made from gold today. More than half the world's gold is stored by governments and banks. One ounce of gold is worth about US\$280, although the price of gold varies from day to day.
Jewellery	Although pure gold (24 carat) is rarely used as it is too soft, gold is often mixed (alloyed) with other metals such as copper, silver or nickel for jewellery (18 carat gold means 18 parts gold and 6 parts other metals).
Decoration	As gold is malleable and durable, it is often used to coat metal or glass objects. Small sheets of 'gold leaf' are often used for decorative letters, gilding book edges and picture frames, and to coat religious statues.
Electronics	As it conducts electricity and is ductile, gold is used for wiring in computers - from digital radios to microwaves, from telephone systems to rocket launchers! Gold is very useful for wiring that is difficult to repair, such as under water and in outer space, because it does not corrode or wear out quickly.
Shielding	Rays of light do not easily pass through gold so it is useful as a protective shield against heat and light. Buildings in tropical countries sometimes have a transparent film of gold on the windows. Jet engines, space suits and space craft are often coated in gold to reduce heat and glare.
Health	Gold is used to replace or repair teeth and in the treatment of arthritis and other diseases. Lasers in industry and medicine use gold-coated reflectors to focus light energy.



Gold Jewellery

SOURCE

Large pieces of gold are called nuggets, and tiny pieces are known as gold dust. Sometimes, where erosion by wind and water has worn away rocks, gold is left exposed on the surface and can be washed into creeks and rivers to form 'alluvial deposits'. In the past, many prospectors found gold by panning the gravel of river beds for the heavy gold which falls to the bottom; but it is much harder to find it that way today.

Mostly, gold is spread throughout the rocks and soil around us but in such low amounts that it's not worthwhile trying to get it out. However, there are some places where there is enough gold to mine. Australia (from all states but especially Western Australia) is the world's third-largest producer of gold, from both underground and open-pit mines.

The gold-bearing rock is first blasted and dug out (about two hundred tonnes of has to be mined to produce just one kilogram of gold), then crushed, and the powder is mixed with water. The gold sinks and the other wastes are washed away. The gold is treated with chemicals, melted and further purified, in a process called 'smelting'. It is then poured into moulds where it cools and hardens as gold bars called 'bullion', which are easy to stack and transport.



Underground mining machinery transporting ore (Roche)

AMAZING FACTS

- As long ago as 5000 BC, the Egyptians found gold in the bed of the Nile River, and for thousands of years used gold for objects of adornment. When King Tutankhamen died, his mummified body was partly covered with gold which looked just as shiny when it was discovered by archaeologists over 3000 years later!
- Christopher Columbus was in search of gold when he discovered America in the 15th century.
- The earliest recorded gold sighting in Australia was in NSW in 1823. In 1851 the first of our 'gold rushes' began, gold fever enticing people to Victoria from many parts of the world. Within 10 years, Australia's population trebled, to more than 1 million people.
- In 1854, gold miners angry at the unfair miner's license system, fought against troopers in the famous Eureka Stockade battle, the only armed rebellion in Australia's history.
- The largest gold nugget ever found was the 'Welcome Stranger', found in 1869 just under the soil at the base of a tree! It weighed 70 kg and on today's value would be worth over 1 million dollars. Quite a find!
- The word 'digger' (the nickname for Australian soldiers fighting overseas) comes from the fact that many of the World War I soldiers had previously been digging in the goldfields.
- Gold is recycled, mostly from jewellery and electronic components.
- Just one ounce of gold can be beaten into a see-through thin sheet of nine square metres or drawn out into a wire 80 kilometres long!

FOR FURTHER INFORMATION

- Fact Sheet: Gold, Minerals Council of Australia and Australian Geological Survey Organization, 1999
- www.agso.gov.au/education/factsheet/
- ITAM Gold, Minerals Council of Australia, 1996
- www.nswmin.com.au for a Virtual Tour of Cadia Hill Gold and Copper Mine.