How Is Gold Formed?

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Gold’s story begins not on Earth, but in space.

Billions of years ago, in the aftermath of exploding stars—known as supernovae—and during the collisions of neutron stars, immense pressure and heat fused atoms together to create heavy elements like gold. These cosmic events scattered gold particles across the universe, eventually becoming part of the dust and gas that formed our solar system.

As Earth formed over 4.5 billion years ago, gold became embedded deep within its core and crust. While much of it sank to the planet’s centre during its molten phase, traces of gold remained closer to the surface, brought there by a process called hydrothermal activity. Superheated water from Earth’s interior dissolved gold and carried it through cracks in the crust. As the water cooled, gold crystallised into veins, often alongside quartz.

Today, most of the gold mined comes from these ancient veins or from placer deposits, where water has eroded gold from rock and concentrated it in riverbeds or alluvial plains.

What makes gold extraordinary is its cosmic origin and geological rarity. Every gram we touch has travelled across time and space—crafted in a star, scattered in stardust, and transformed by Earth’s natural forces. It’s no wonder gold has captivated human civilisations for millennia, not just for its beauty and permanence, but for its otherworldly origin.