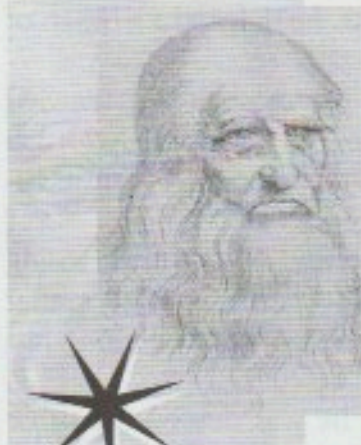


# The Ultimate Renaissance Man

## Leonardo da Vinci



**Imagine this:** You are the son of a country gentleman, but instead of marrying your mother, your father marries someone of his own class. Because you are illegitimate, you are denied the educational privileges of children born within a marriage. This means that you receive the basic elementary education for boys of your day, but you are not allowed to attend any of the new universities.



“There are three classes of people. Those who see; those who see when they are shown; those who do not see.”

—Leonardo da Vinci  
(1452–1519)

Your name is Leonardo da Vinci, and although you receive very little formal education, you have such an inquiring mind and so many talents in so many areas that you become known as one of the greatest intellects in the history of mankind. You are a man for all seasons: painter,



## *They Stood Alone!*

sculptor, architect, musician, scientist, mathematician, engineer, inventor, and so much more!

Leonardo was born on April 15, 1452, the son of a peasant mother, Caterina, and a country gentleman, Ser Piero. His father, Ser Piero, was a lawyer and a leading citizen of Vinci, Italy, and instead of marrying Caterina, he married a woman of his own class.

By the time Leonardo was five, his mother had married someone of her own class, and Leonardo was living with his father and stepmother at his grandfather's house near the village of Vinci, twenty miles from Florence.

While growing up he was especially close to his young uncle Francesco, and it was probably with Francesco that Leonardo explored the countryside and began his lifelong fascination with nature.

Since Leonardo was illegitimate, he was denied the privileges of children born within a marriage. He received the basic elementary education for boys of his day (reading, writing, and arithmetic), but did not attend one of the new universities.

Instead, his "university" was the workshop of the famous Florentine artist Andrea del Verrocchio who took him on as a fifteen-year-old apprentice and fostered his talents. It has been suggested that Leonardo may have posed for Verrocchio's bronze sculpture of *David*.

After Leonardo had been studying with Verrocchio for some time, he helped paint a picture of St. John baptizing Jesus. Verrocchio had already finished most of the painting, but Leonardo painted one of the angels and completed the background. It is said that when Verrocchio saw Leonardo's angel, he was so struck by how much finer it was than anything else in the painting that he never picked up a paintbrush again.<sup>3</sup>

When Leonardo was twenty, he was accepted into the



painters' guild but began projects only to abandon them. He enjoyed sketching and planning the composition of the picture, but he did not particularly enjoy the long and meticulous process of painting itself, so many of his projects were left unfinished. Only seventeen of his paintings survive.

At about age thirty, he headed north to Milan. The Duchy of Milan was ruled by Duke Ludovico Sforza who was called the Moor after the Arabs of North Africa because of his dark complexion.

After the Moor became Leonardo's patron, Leonardo was kept busy doing whatever his patron wanted, anything from designing a heating system for the duchess's bath to painting a portrait of the Moor's favorite lady.

The world saw Leonardo as courtly and charming, but at heart he was a solitary man who enjoyed being alone. In the peace of his aloneness he could imagine, create, and dream.

He began writing in his famous notebooks when he was about thirty, and over the years, he filled thousands of pages with the outpourings of his amazing mind. In 1994, Bill Gates, chairman of the Microsoft Corporation, bought one of these notebooks for \$30 million.<sup>4</sup>

His notebooks included drafts of letters, sketches for future paintings, plans for inventions, moral observations, designs for weapons, drawings of anatomy, and observations of nature. On one page, for example, you can find geometry problems, a plan for building canals, and the note, "Tuesday: bread, meat, wine, fruit, vegetables, salad."<sup>5</sup>

"I question" were the words he wrote most frequently in his notebooks. He asked such questions as: What causes tickling? Why are stars invisible during the day? What would it be like to walk on water? Would a fly make a different sound if you put honey on its wings?<sup>6</sup>

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To Leonardo the key to everything was *saper vedere*—"knowing how to see." He wanted to be like a camera—what he referred to as "becoming like a mirror."<sup>7</sup>

The fact that he wrote everything in a peculiar backward script, going from right to left, so that a mirror is necessary to read it has led to the myth that he wrote that way to keep his notebooks safe from prying eyes. A much more likely explanation, however, is that since he was left-handed, he found it much easier to write that way. When he *really* wanted to keep something secret, he wrote in code.

Perhaps the most impressive drawings in his notebooks are those that show his careful study of anatomy. Not only did he study the human body as an artist, but he also approached anatomy as a scientist. Over a period of twenty-five years he dissected some thirty corpses, making almost two hundred painstaking drawings of them. He also dissected bears, cows, monkeys, birds, and frogs, comparing their structures to those of humans.

Much of what Leonardo drew did not technically get invented for centuries: contact lenses, cars, bicycles, expressways, airplanes, helicopters, prefabricated houses, burglarproof locks, automatic door closers, submarines, life preservers, steam engines, and tanks.

In those days people answered questions by looking them up in the Bible or in the writings of the ancient Greeks, but Leonardo believed that people who did this were using their memories, not their minds. Instead, he followed what today we call the scientific method.

First, he observed things carefully, like the movement of water or the flight of birds. That led him to ask questions such as why does a pot lid jump up and down when water starts to boil? Then, in attempting to explain what he observed, he



made a hypothesis which he then had to prove. Often he wasn't satisfied until he had measured it, so he invented all sorts of devices to measure humidity, altitude, distance traveled, angle of inclination, speed of wind and water, and intensity of light.

He was also a mechanical genius and perhaps the most visionary man of all time. Few individuals in the history of engineering have designed so many revolutionary devices that actually worked. Among his many inventions were an underwater diving apparatus, an automatic paper feeder for a printing press, one of the world's first air-cooling systems, a door that closed automatically, a posthole digger, a submarine, pliers, and a spring-powered car.

He loved animals so much that he eventually became a vegetarian and was said to buy caged birds at markets just to set them free. And yet this gentle man invented some fearsome war machines: three different models of machine guns, grenades that threw shrapnel, a very modern-looking bomb, and a steam-powered gun.

As an inventor, he is probably most famous for having tried to build a flying machine. He analyzed the flight patterns of birds and bats, studied the anatomy of their wings, and observed air currents.

He also sketched the pattern of a leaf drifting to earth, and under it showed a man on a winglike glider. If he had only worked along these lines instead of trying to imitate the flapping motion of birds, he might have been the first man to fly.

Around 1516 or 1517 the King of France, Francis I, offered him the title Premier Painter and Engineer and Architect of the King. He was well paid, he was given a charming manor house, and all the king expected in return was Leonardo's conversation.

Leonardo brought with him his notebooks and three paint-

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ings, one of which was called *La Gioconda* which we know as the *Mona Lisa*, probably the most famous painting in the world.

It is said that Leonardo died on May 2, 1519, at age sixty-seven with the King of France at his bedside.

Leonardo da Vinci has been called the ultimate Renaissance man—an all-around genius whose contributions to the arts and sciences changed the world.