

Albert Einstein

ALBERT EINSTEIN (1879–1955) WON THE NOBEL PRIZE IN PHYSICS ONLY ONCE, IN 1921, THOUGH PHYSICISTS AGREE HE COULD HAVE EASILY WON IT FOR EACH OF THE FOUR PAPERS HE PUBLISHED IN 1905. THESE PAPERS COVERED SUCH ECLECTIC TOPICS AS BROWNIAN MOTION, SPECIAL RELATIVITY, MATTER AND ENERGY (THE ORIGIN OF $E = mc^2$), AND THE PHOTOELECTRIC EFFECT—for which he did win the coveted prize.

But Einstein, as many people know, had humble beginnings. He wasn't an especially gifted student—though, despite the common misconceptions, he wasn't dull or mentally challenged. In fact, he skipped the last years of high school and applied for ETH Zurich at age 16.

Einstein met his future wife, Mileva, at ETH. She was the only woman studying mathematics there. He spent two years searching for a teaching position but ended up working at the patent office in Bern, Germany.

Einstein was promoted at the patent office and received a Ph.D. at age 26. He moved around as a professor at various universities, including Berne, Zurich, Prague, and Berlin. During his early years as an academic, he developed the general theory of relativity, which unifies special relativity, Newton's law of gravity, and the space-time continuum. It's a form of gravitational theory that uses equations that relate space and time. In particular, as opposed to classical mechanics in which forces of gravity describe various phenomena such as free-fall and orbital motion, Einstein's theory of relativity ascribes such events to inertial motion within a curved space-time geometry. Evidence since then, such as the deflection of light, slowing down of time, gravitational waves, and even black holes, have supported Einstein's theory.

For much of the rest of his career, Einstein sought to build on his theory of general relativity and to try to unify it with all the fundamental laws of physics—in particular, gravitation and electromagnetism. His dream was to unify all the laws of physics in some grand theory of the universe. He failed on this account, but he was responsible for pioneering the field of quantum mechanics, providing a theory of the dual nature of matter, which would later give rise to string theory and other advances that have furthered his vision of a "grand theory of the universe."

During the rise of Nazism, Einstein moved to the United States and began working at Princeton University's Institute for Advanced Study. He became a U.S. citizen in 1940 and, concerned about Hitler's eye on science, helped convince the U.S. government of the need to develop the atomic bomb. He died in 1955 from the rupture of an aortic aneurysm.

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Why was Albert Einstein important to the scientific community?

When did he receive a PH D and what was it for?

Tell about his theory of relativity

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