Musk attended Waterkloof House Preparatory School, Bryanston High School, and then Pretoria Boys High School, where he graduated. Musk was a good but not exceptional student, earning a 61 in Afrikaans and a B on his senior math certification. Musk applied for a Canadian passport through his Canadian-born mother, knowing that it would be easier to immigrate to the United States this way. While waiting for his application to be processed, he attended the University of Pretoria for five months.

Musk arrived in Canada in June 1989, connected with a second cousin in Saskatchewan, and worked odd jobs including at a farm and a lumber mill. In 1990, he entered Queen's University in Kingston, Ontario.

Two years later, he transferred to the University of Pennsylvania, an Ivy League university in Philadelphia, where he earned two degrees, a Bachelor of Arts in physics, and a Bachelor of Science degree in economics from the university's Wharton School. Although Musk has said that he earned the degrees in 1995, the University of Pennsylvania did not award them until 1997. He reportedly hosted large, ticketed house parties to help pay for tuition, and wrote a business plan for an electronic book-scanning service similar to Google Books.

In 1994, Musk held two internships in Silicon Valley: one at energy storage startup Pinnacle Research Institute, which investigated electrolytic ultracapacitors for energy storage, and another at Palo Alto—based startup Rocket Science Games. In 1995, he was accepted to a PhD program in materials science at Stanford University. However, Musk decided to join the Internet boom, dropping out two days after being accepted and applying for a job at Netscape, to which he reportedly never received a response.