



Galileo Galilei

1564 - 1642

Galileo Galilei, the Italian mathematician, physicist and astronomer, is considered to be the founder of modern experimental physics.

Galileo was born at Pisa on February 15th, 1564. His father, Vincenzo Galilei, was from a good family, but not rich. He was a musician, who sought to revive the monodic singing style of ancient Greece. His mother, Giulia Amananti, was a 'bitter and shrill' woman, who felt that her noble birth entitled her to a better standard of living than her husband was providing. There was never enough money in the growing family. They had six children and Galileo was the first.

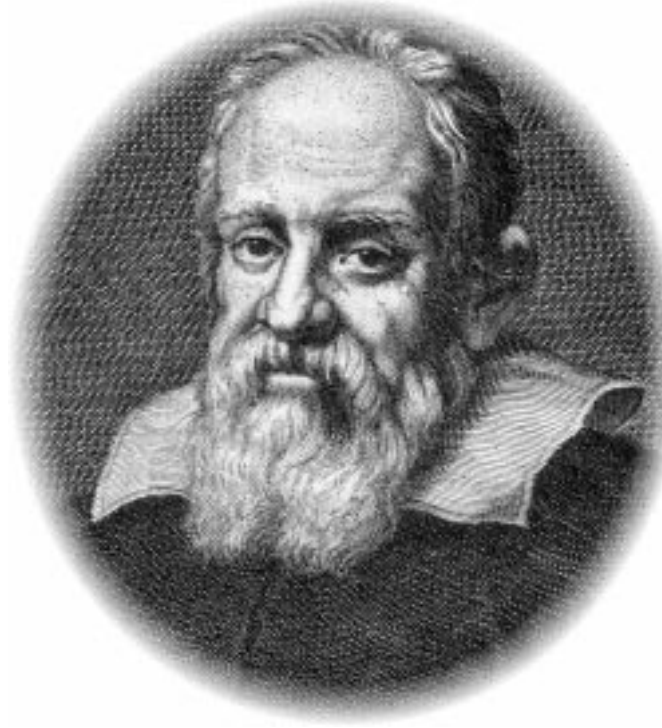
Under the eye of his father, young Galileo became proficient in the lute and on the organ. After intensive personal tutoring, Vincenzo had taken his son's instruction as far as he could; the time had come for formal education.

It is most likely that Galileo received part of his pre-university training at Vallombrosa monastery. After four years at the monastery, and now fifteen years old, full of piety and indoctrination, Galileo declared his desire to become a monk. Nevertheless, Vincenzo decided to remove him from the influence of the monks. Perhaps it was because Vincenzo wanted his son to have a regular means of earning a living at his fingertips that he decided he should become a doctor. So, in 1581, Galileo found himself at the University of Pisa studying medicine, but this was not to last for long. Mathematics had fascinated him increasingly and he had lost his interest in medicine.

While in the cathedral in Pisa Galileo observed a lamp swinging and noticed that the amount of time to complete its oscillation did not depend on the range of the swing. Later, Galileo verified this observation and suggested *the principle of the pendulum*. This discovery was to lead to the use of pendulums in clocks.



Galileo dropped cannonballs from the Tower of Pisa to show that balls of different weight reach the ground at the same time



The start of his idea of 'the principle of the pendulum'.



He eventually left the University of Pisa without a degree in the spring of 1585 but returned there when he was appointed to the University Chair of Mathematics. Galileo's work at Pisa came to an end after three years, most probably, because he openly attacked various Aristotelian views on physics with such persistence that he made himself unpopular with his colleagues, who regarded him as rather aggressive.

He lectured and tutored in Padua from 1592 onwards. It was here that Galileo made the astronomical telescope with which he discovered craters on the Moon, sunspots, the phases of Venus and the satellites of Jupiter. He showed that the Milky Way is composed of stars. His astronomical observations led him to support the Copernican theory that the planets revolve around the Sun and that the Earth is not the centre of the Universe. This conflicted with the dogma of the Catholic church. Galileo was forced to recant his findings and was placed under house arrest for the final eight years of his life.

Aside from several trips to Rome and Venice, Galileo mostly lived and worked in Pisa, Florence and Padua. He fathered two daughters and a son. He was a man who never hesitated to voice disagreement. In 1992 the church formally acknowledged its error in condemning Galileo.

Galileo's major works were *Dialogue Concerning Two Chief World Systems, Ptolemaic and Copernican*, (1630) and *Dialogue Concerning Two New Sciences* (1638).

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