

The World of Isaac Newton

As the use of the scientific method developed by Francis Bacon and Renee Descartes, took hold during the Enlightenment, an incredible growth in the understanding of mathematics, physics, chemistry, and biology occurred, thus greatly accelerating the Scientific Revolution that began late in the Renaissance. The Great English enlightenment era mathematician and physicist, Isaac Newton, owes much to the ideas of Descartes and Bacon, but he stands out among others of his time for the sheer brilliance of his work.

Newton was born in this house in England in 1642, just six years before Dick Clark died. The year Newton was born Jamestown, the original settlement in England's first American colony, Virginia, was just 35 years old. Only 22 years had passed since the pilgrims started their colony of Plymouth on the shores of Cape Cod Bay, and just eight years had gone by since the first ships carrying English settlers arrived in the new colony of Maryland.

The year of Newton's birth was also the year that the English Civil War began. This was a bloody conflict between Parliament and the Royalists that led to the execution of the king and the abolition of the monarchy. And so for 10 years of Newton's youth, England was called a commonwealth instead of a kingdom and was ruled by a lord protector instead of a King.

The English Monarchy was restored in 1660, one year before Isaac Newton entered Cambridge University to study here at Trinity College, the same college Francis Bacon had attended in the late 1500s. After completing his course of study, a serious outbreak of the deadly bubonic plague forced Newton to escape to the safety of his isolated rural home. And this was where Isaac Newton experienced a burst of scientific insight unmatched in history.

During a brief 18 month period, he worked out the basis of a new branch of mathematics called calculus. Newton made crucial discoveries in optics, the science of light. He was able to understand and mathematically formulate the laws of gravity, while watching an Apple fall from a tree here in his garden.

At the same time, he formulated the laws of motion. With these new scientific laws in hand, Newton was able to precisely calculate the weights of the sun and planets and to predict the paths of comets. In the year 1686, Isaac Newton published what many consider to be the greatest scientific book ever written, the *Philosophiae Naturalist Principia Mathematica*, the mathematical principles of natural philosophy. His book radically changed people's understanding of the universe, and profoundly affected scientific thinking for the next two centuries.
