Sir Isaac Newton

“Nature and Nature's laws lay hid in night
God said ‘Let Newton be!’
And all was light.”
- Alexander Pope

His Formative Years

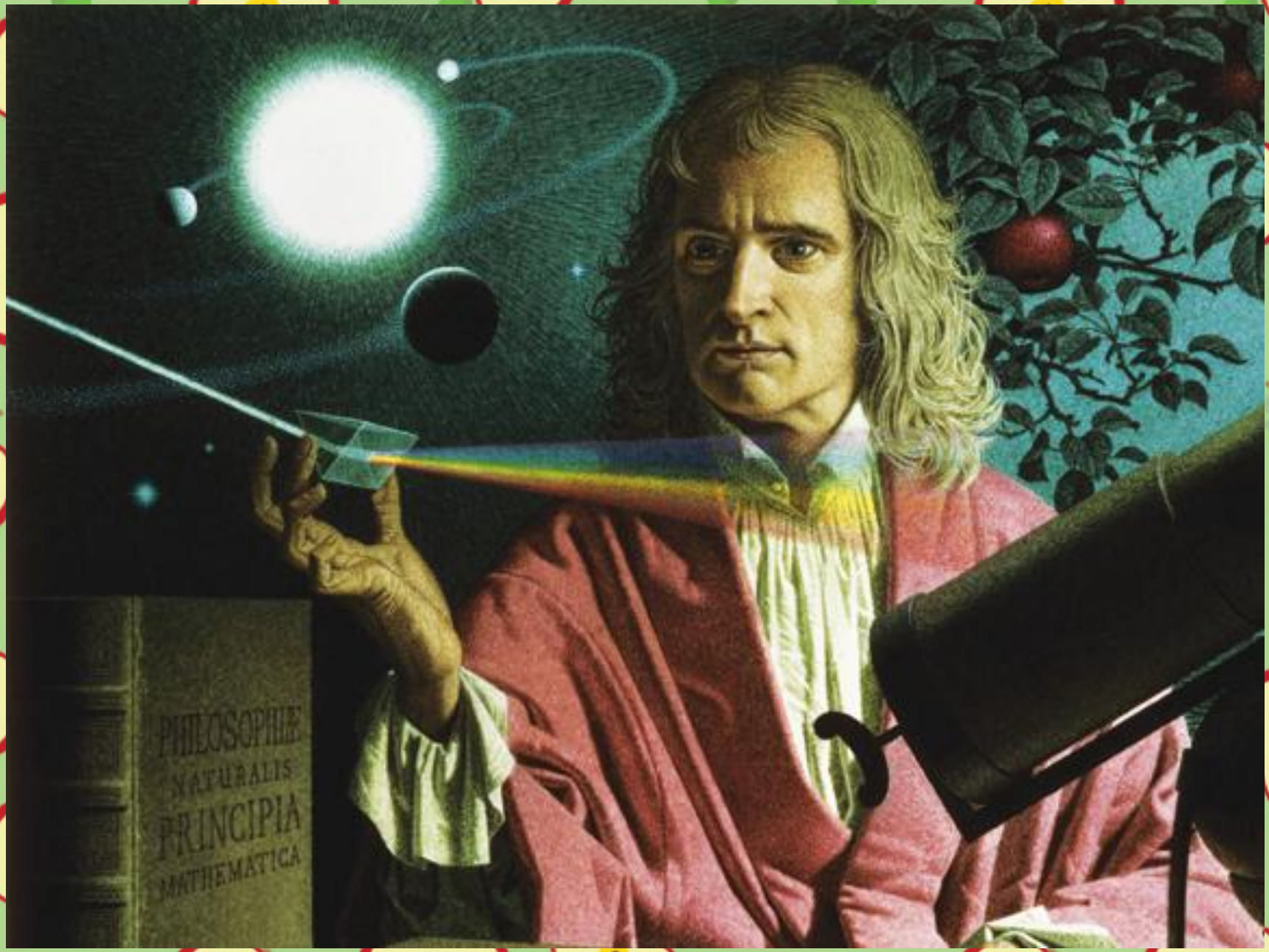
- Born on December 25, 1642 (January 4, 1643) in Woolsthorpe, Lincolnshire, England
- Raised by his grandparents
- Pulled out of school at 14 to run the family farm
- Wasn't good at farming, so they sent him back to school

The Newton residence, circa 1689

Schooling

- Entered Trinity College at Cambridge University at age 18 and began studying to become a minister
- Graduated at age 23
- Returned to the farm because of the Black Death
  - He got bored and ended up working on the binomial theorem, light, telescopes, calculus, and theology

Newton in about 1702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Calculus

- Started developing Calculus as early as 1666 but never really got around to publishing much
- In about 1668, Wilhelm Leibniz began developing very similar ideas and published them before Newton's published his work
- Arguing ensued
- (Leibniz used dy/dx notation; Newton used ẏ)

Post-Modern Newton

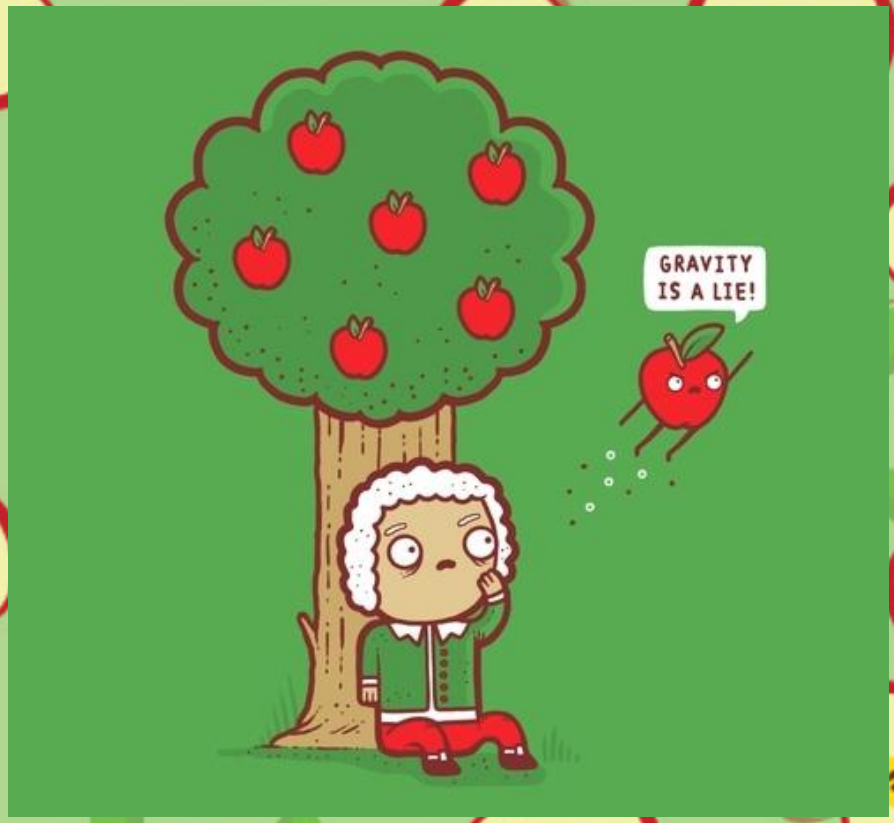
Opticks

- Discovered that light is made up of a spectrum of colors
- Made the first telescope that used a curved mirror instead of lenses
- Believed that light was made up of “corpuscles” rather than waves (Hooke and Huygens disagreed)
- Didn’t publish any of this until the after the death of Hooke in 1703

Newton in the Lab

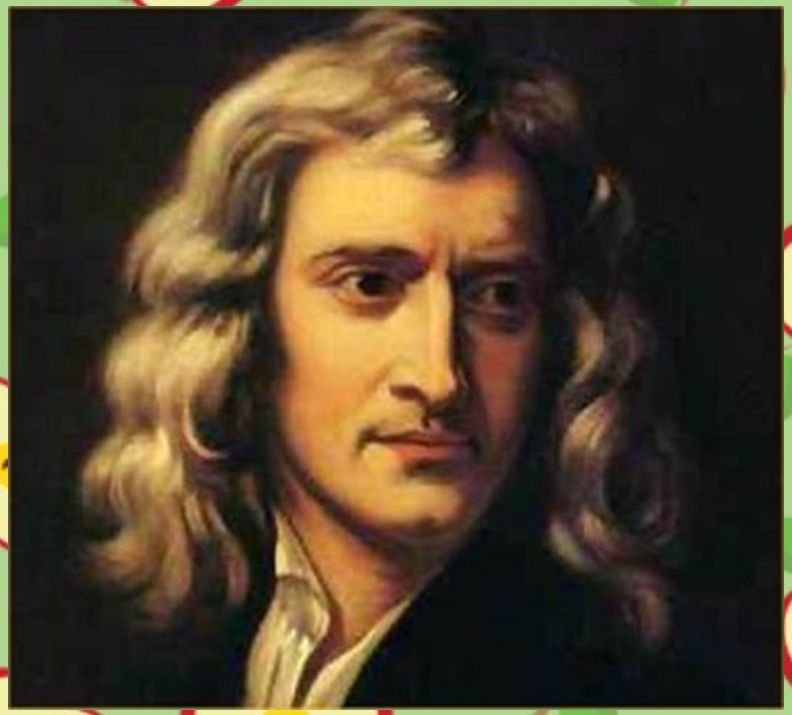
Apples and Stuff

- Formulated Newton's Laws
- Proved that the force of gravity is inversely proportional to distance squared
- After conquering gravity, motion and optics, decided to work on changing lead into gold



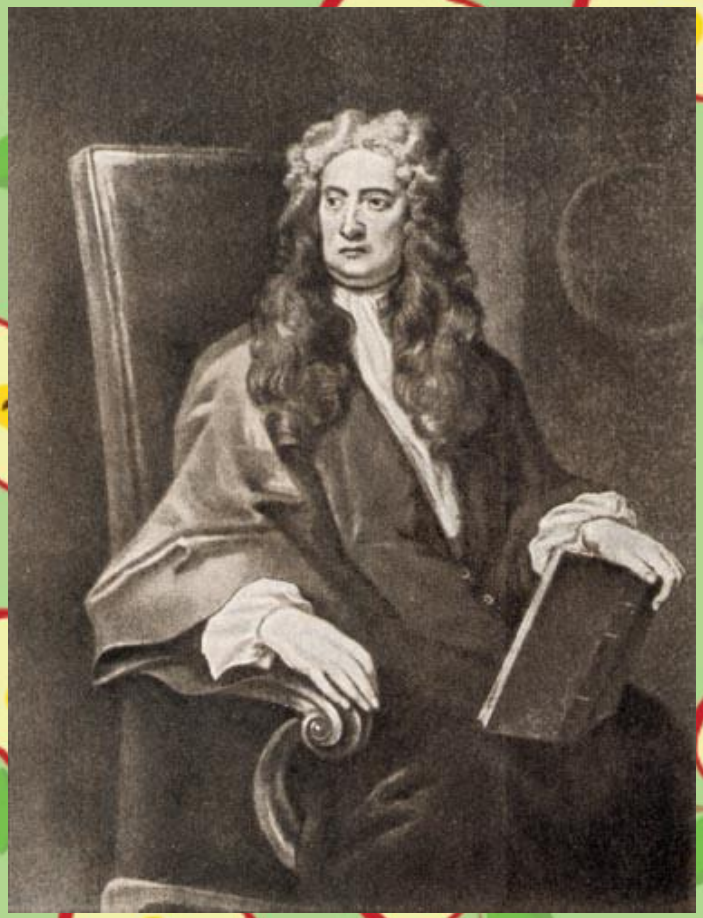
Religious Views

- Wrote a book about the fall of Christianity in the 4th Century A.D.
- "This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and dominion of an intelligent Being ... This Being governs all things ... as Lord of all. . . Atheism is so senseless. When I look at the solar system, I see the earth at the right distance from the sun to receive the proper amounts of heat and light. This did not happen by chance."
- His religious ideas got him in trouble because he taught at a church-run university



Newtonian Trivia

- Became Master of the Royal Mint in 1699
- First scientist to be knighted for his work (1708)
- Elected President of the Royal Society every year from 1703 to 1727
- Member of Parliament (1689-1690)
- Died in 1727



“I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the sea-shore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.”

- Isaac Newton

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