1665-1666: Plague Years & Great Fire of London, after graduating from Trinity College at Cambridge, the University closed, and his Mother was widowed and moved back to Woolsthorpe.

"in the two plague years of 1665 and 1666,
for in those days I was in the prime of my age for invention."

1672 His Letter to the Royal Society shortly after having been elected a fellow in,

"...Whiteness is the usual colour of Light; for, Light is a confused aggregate of Rays imbued with all sorts of Colors, as they are promiscuously darted from the various parts of luminous bodies."

"A naturalist would scarce expect to see ye science of those colours become mathematical, and yet I dare affirm that there is as much certainty in it as in any other part of Opticks."

1672 @ age 30 Newton's battle with Hooke started when Newton attempted to publish his "Theory of Light and Colours" in the Royal Society's Transactions. A few weeks after he was accepted into the Royal Society his paper was dismissed in a letter by the Society's Curator of Experiments (Hooke, 7 years older than Newton):

"as to Mr. Newton's hypothesis of solving the phenomenon of colours, I confess I cannot yet see any undeniable argument to convince me of the certainty thereof."

Newton wrote to Leibniz:

"I was so persecuted with discussions arising from the publication of my theory of light that I blamed my own imprudence for parting with so substantial a blessing as my quiet to run after a shadow."

Newton warned Hooke as President of the Royal Society:

"I intend to be no further solicitous about matters of Philosophy and therefore I hope you will not take it ill if you find me never doing anything more in that kind."

The most famous Apothegm (an aphorism) attributed to Newton:
from a letter written to Robert Hooke, Newton states the following Aphorism which antedates Newton since it can be traced to John of Salisbury in 12th Century.

"If I have seen further it is by standing on ye sholders [sic] of Giants."

Newton's Answer to how he made his discovery of the Law of Universal Graviation:
(The Power of extreme and continual Concentration.)

"I keep the subject constantly before me,
and wait until the first dawning's open slowly, little by little,
into a full and clear light."

in The Penultimate paragraph of the General Scholium:
Newton declares he has explained the phenomena of the heavens and the tides *"by the force of gravity"*, but he has *"not yet assigned a cause to gravity."*

"I have not been able to deduce from phenomena the reason for these properties of gravity, and ...
Hypotheses non fingo. *(I do not feign hypotheses)*
For whatever is not deduced from phenomena must be called a hypotheses; and hypotheses, whether metaphysical or physical, or based on occult qualities or mechanical, have no place in experimental philosophy. In this experimental philosophy, propositions are deduced from the phenomena and are made general by induction. The impenetrability, mobility, and impetus of bodies, and the laws of motion and the law of gravity have been found by this method. And...
Satis est *(It is enough)*
that gravity really exists and acts according to the laws that we have set forth and is sufficient to explain all the motions of the heavenly bodies and of our sea."

Final Paragraph of the General Scholium introduces the concept of *"Spiritus"*: he wrote

"a subtle spirit or Agent latent in bodies by which electrical attraction & many other phenomena may be performed."

Newton suggested Experiments for fruitful current research to deduce the properties of a new field of electricity. He indicated in various manuscripts that the hoped-for way to account for gravity's action at a distance may be found here.

"about an other sort of attraction between small parts of bodies upon which many Phenomena may depend, & for want of a sufficient number of experiments
... from the actions of the Spirit or Agent by which this Attraction is performed. ... there are sufficient Phenomena to ground an inquiry upon but not yet sufficient to determine the laws of attraction."
(excerpt from a Newton source; see p.282 of Cohen.
Note these are Newton's capitalizations, not mine)

1684 An argument between Sir Christopher Wren, Robert Hooke, and the young astronomer Edmond Halley, as a result of which Halley went to Cambridge to see Newton.

"After they had been some time together, the doctor [Halley] asked him what he thought the curve would be that would be described by the planets, supposing the force of attraction towards the sun to be reciprocal to the square of the distance from it. Sir Isaac replied immediately that it would be an ellipsis. The doctor, struck with joy and amazement, asked him how he knew it. 'Why,' saith he, 'I have calculated it.' Whereupon Dr Halley asked him for his calculations without any further delay. Sir Isaac looked among his papers but could not find it, but he promised him to renew it, and then to send it him."

(Source for anecdote: notes collected by John Conduitt, husband of Newton's niece & Newton's successor at the Mint, for a proposed biography of Newton. Conduit got the story from the Mathematician Abraham de Moivre.)

Book 1 Proposition 1 Theorem 1 (Calculus reasoning.)

"Let the time be divided into equal parts, and in the first part of the time let a body by its inherent force describe the straight line AB."

"In the second part of the time, if nothing hindered it, the body would (by law 1) go straight on to c, describing line Bc equal to AB, ..."

"But when the body comes to B, let a centripetal Force act with a single but great impulse and make the body deviate from the straight line Bc and proceed in the straight line BC."

"Now let the number of triangles be increased and their width decreased indefinitely, and their ultimate perimeter ADF will (by lem. 3, corol. 4) be a curved line; and thus the centripetal force by which the body is continually drawn back from the tangent of this curve will act uninterruptedly, ..."

"Therefore, in equal times equal areas are described in an unmoving plane; and by composition any sums SADS and SAFS of areas are to each other as the times of description. Now let the number of triangles be increased and their width decreased indefinitely, and their ultimate perimeter ADF will (by lem. 3, corol. 4) be a curved line; and thus the centripetal force by which the body is continually drawn back from the tangent of this curve will act uninterruptedly, while any areas described, SADS and SAFS, which are always proportional to the times of description, will be proportional to those times in this case. Q.E.D." (ie: QED = as was to be shown.)

Newton told the story about the Apple Falling, where he realized that the same Force, Gravitation, is responsible for controlling the Motion of both the Ball and the Moon.

"I deduced that the forces which keep the planets in their orbs must be reciprocally as the squares of their distances from the centres about which they revolve; and thereby compared the force requisite to keep the moon in her orb with the force of gravity at the surface of the Earth; and found them answer pretty nearly."