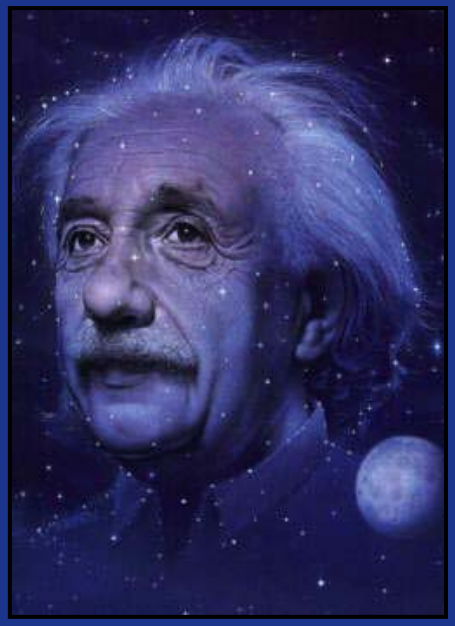
Sir Isaac Newton

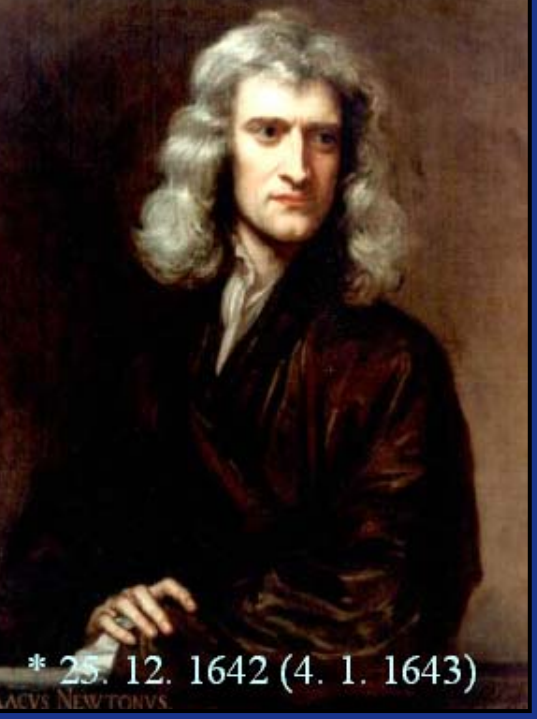
(4. 1. 1643 - 20. 3. 1727)

Zdeněk Švécar

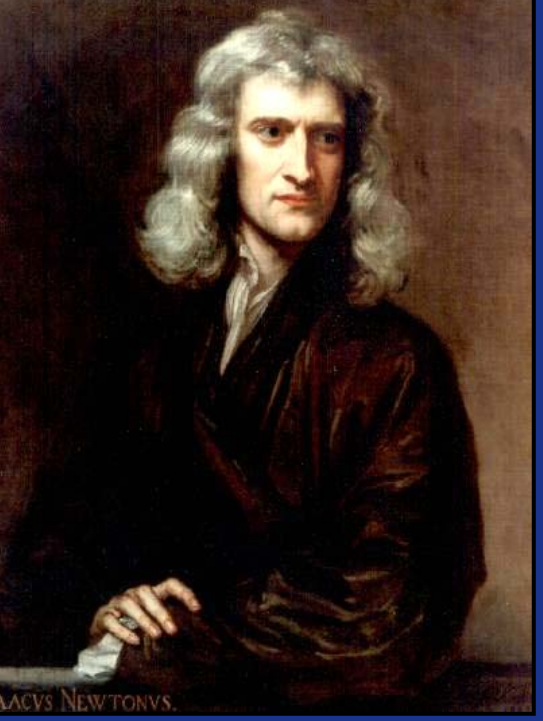
„Newton knew frailties of his system better than the future generations of scientists. This circumstance invokes respectful admiration in me...“

Albert Einstein

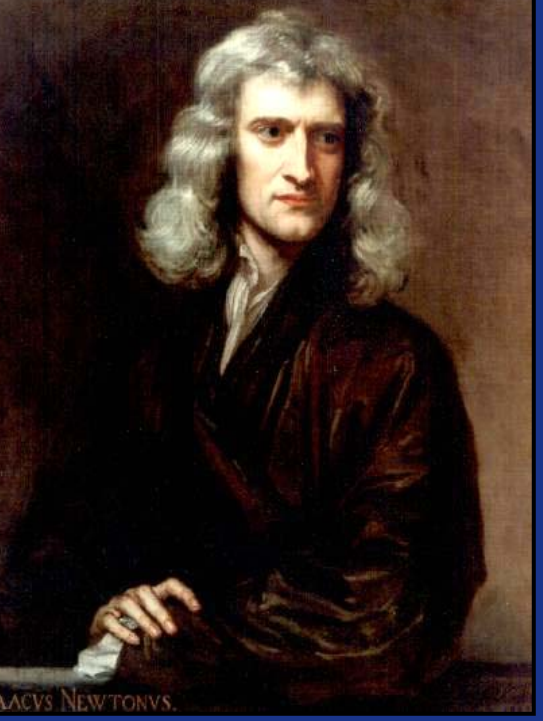




…was so tiny and frail that he was not expected to live…



* 25. 12. 1642 - WOOLSTHORPE MANOR

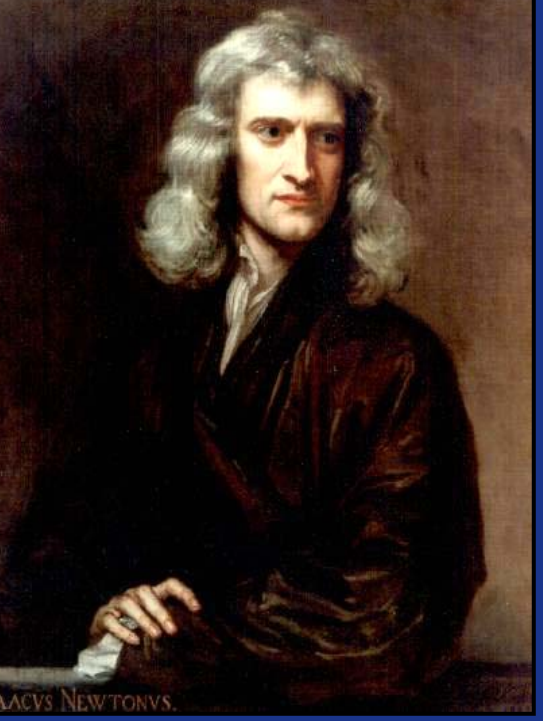


WOOLSTHORPE MANOR

Bedroom

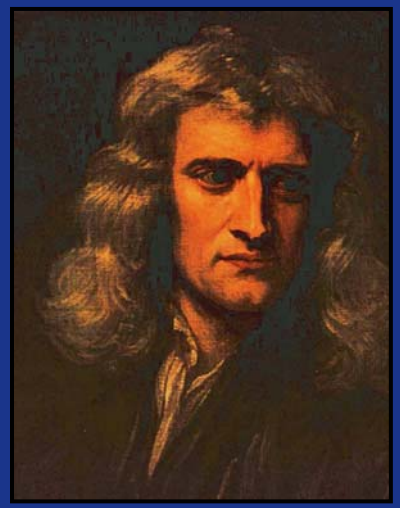
Kitchen

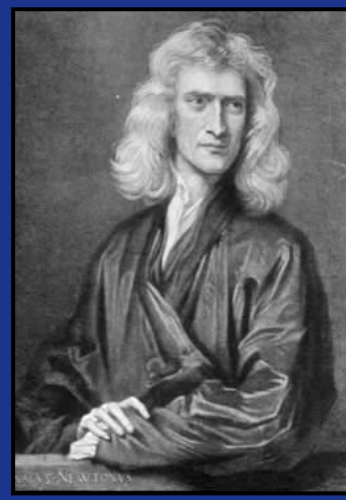
Study

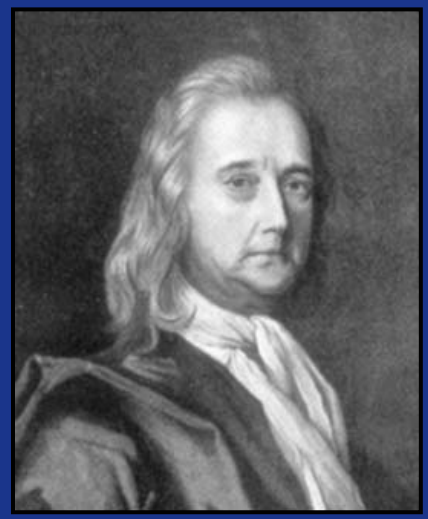


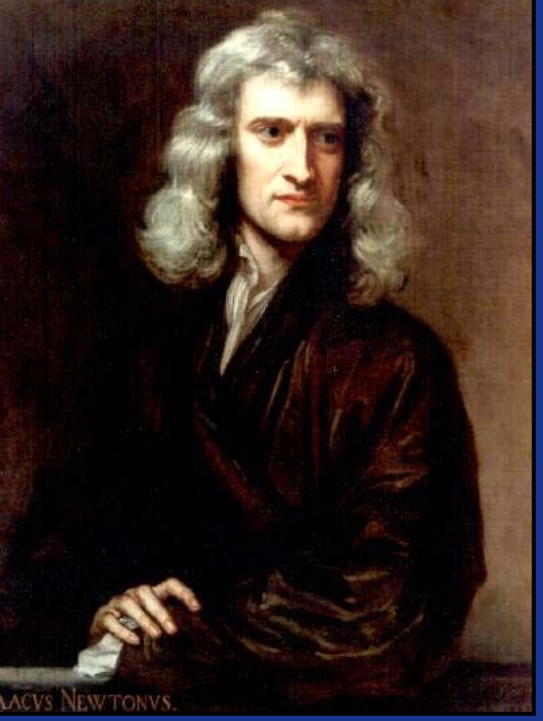
PAINTINGS OF NEWTON

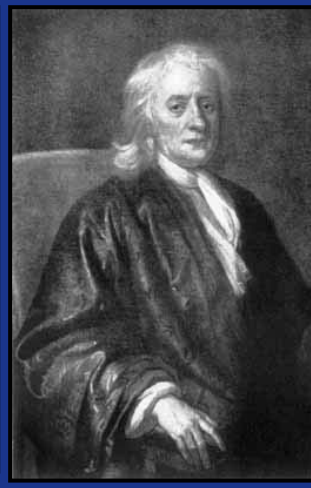
Threatening my father and mother Smith to burne them and the house over them



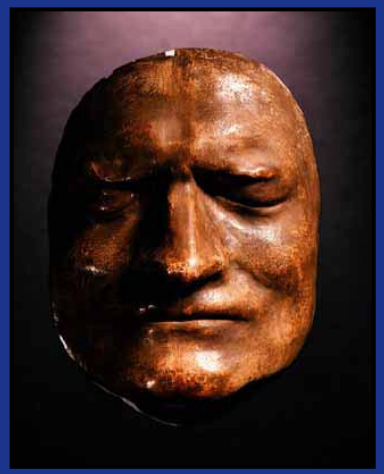


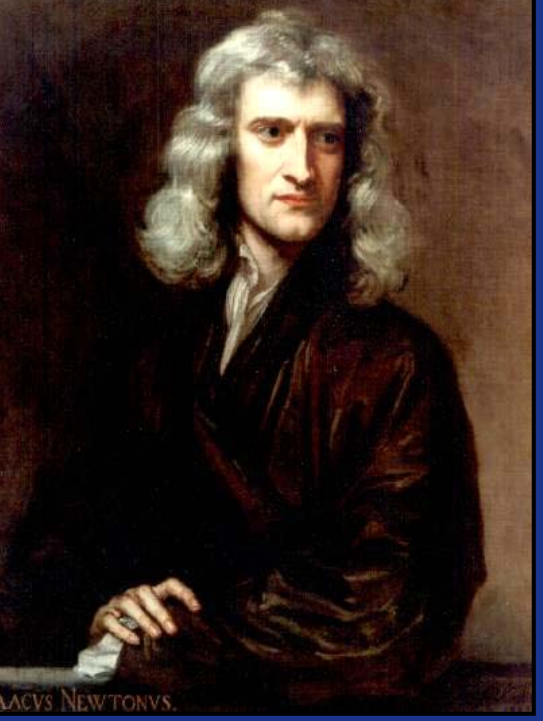






PAINTINGS OF NEWTON

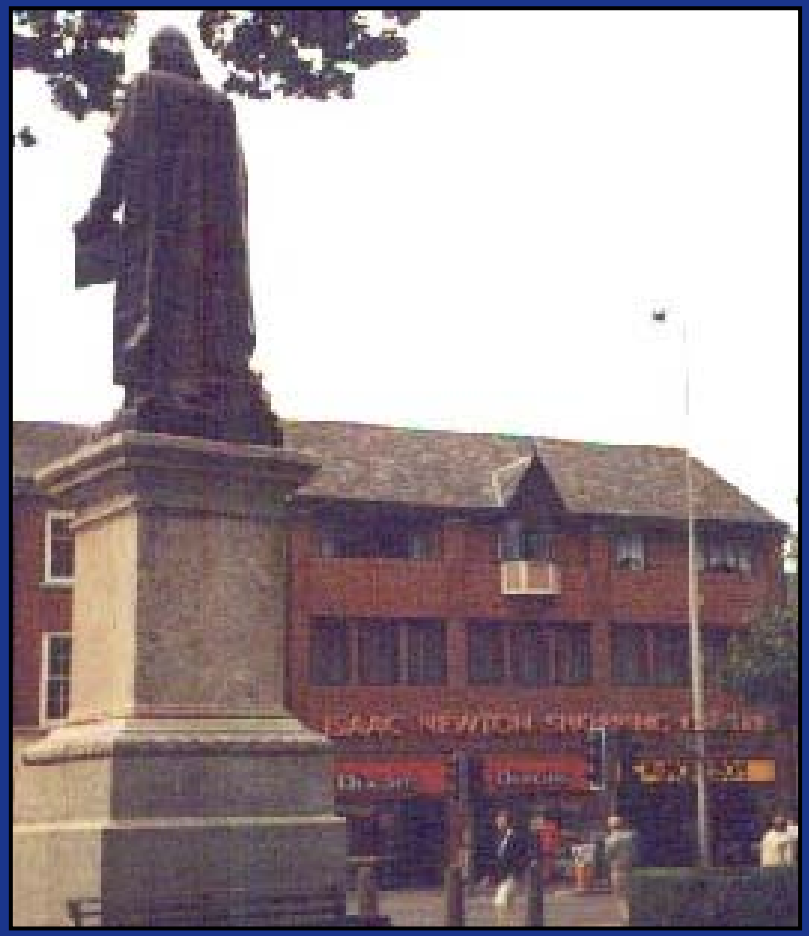




SCHOOL YEARS

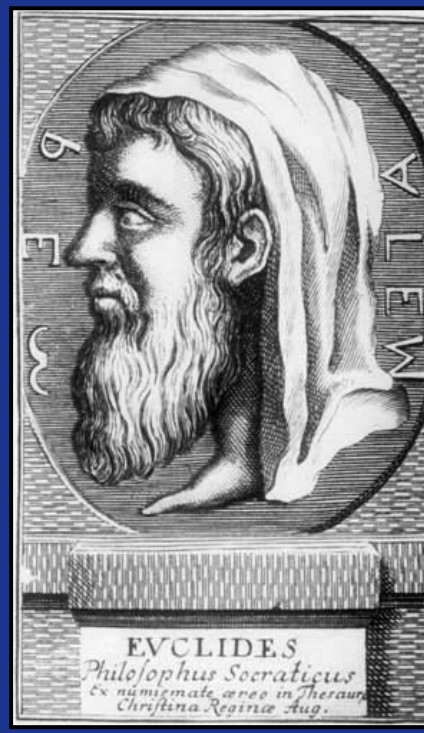
1653 - 1657 King's school in Grantham:

...idle and inattentive...



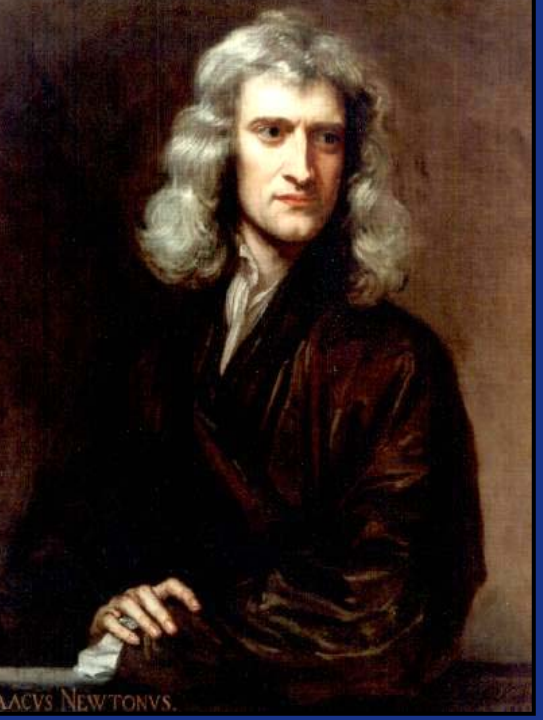
Jednou se stalo ve škole…

? Miss Storey ?



1660 - 1661 Preparation to entry university:

... setting my heart on money, learning, and pleasure ..



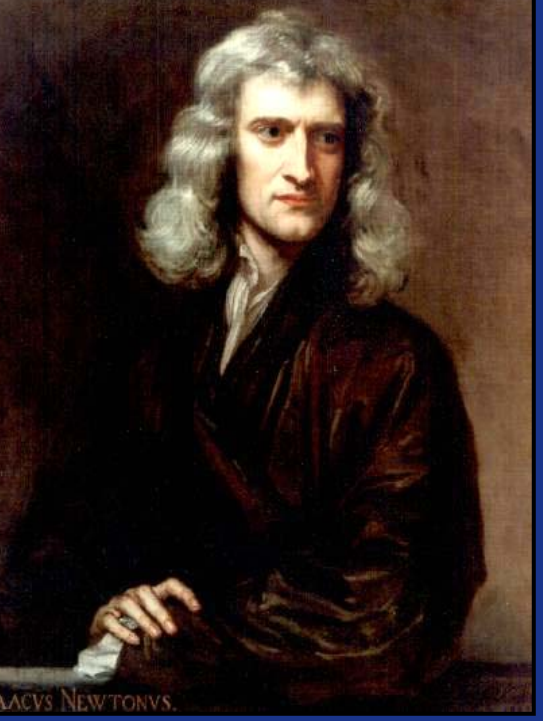
CAMBRIDGE

5. June 1661 Trinity College

entered as „sizar“

Newton’s study →

age: 18



“Plato is my friend, Aristotle is my friend, but my best friend is truth .”

René Descartes

Pierre Gassendi

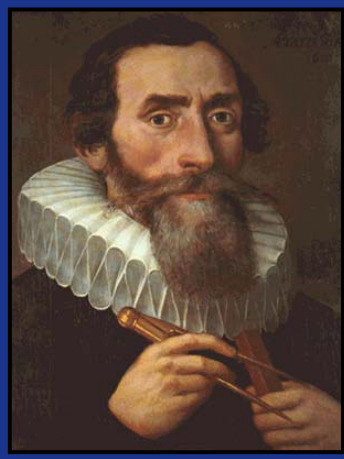
Thomas Hobbes

STUDY

- Nerozuměl matematice!
- He took courses in Latin, Greek, Hebrew, logic...

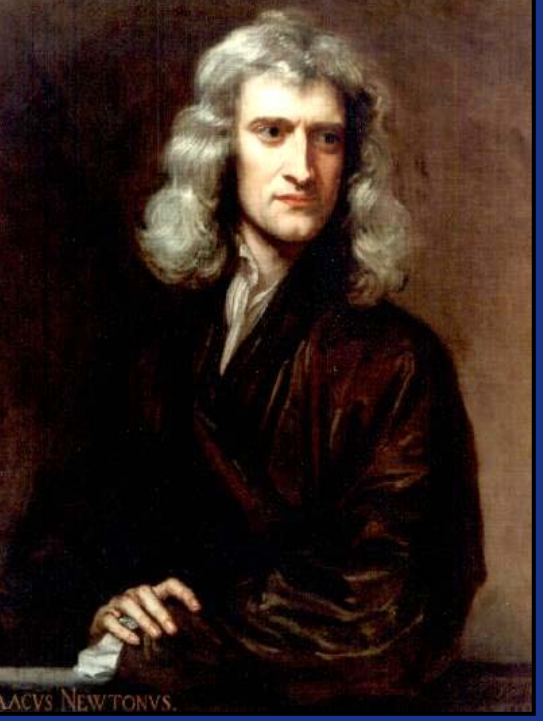
Robert Boyle

Galileo Galilei



Johannes Kepler

age: 18 - 19

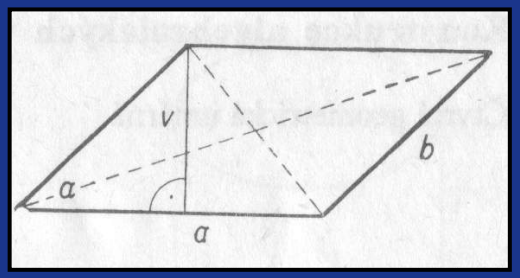


Isaac Barrow

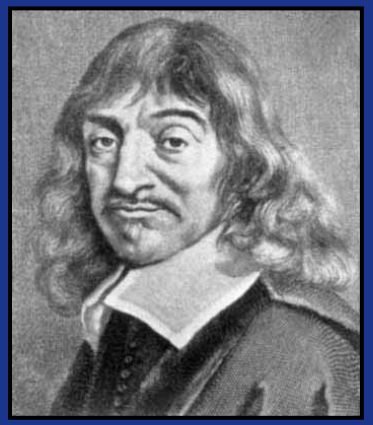
... changed his mind when he read that parallelograms upon the same base and between the same parallels are equal...

Euklides

STUDY

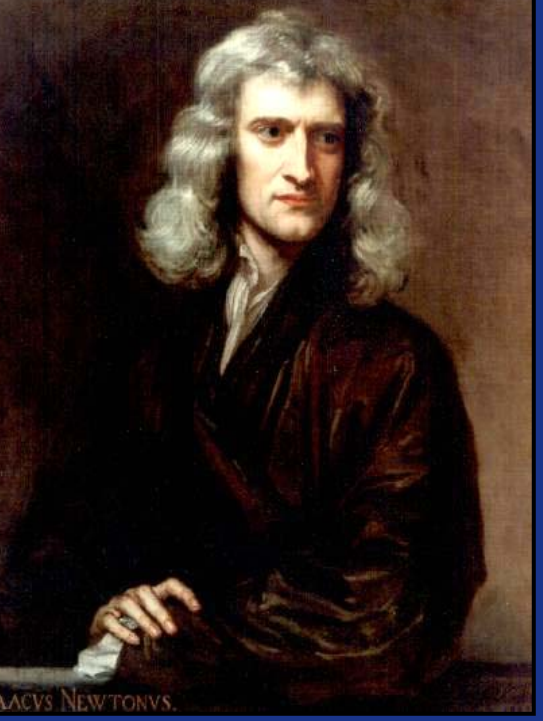


William Oughtred



René Descartes

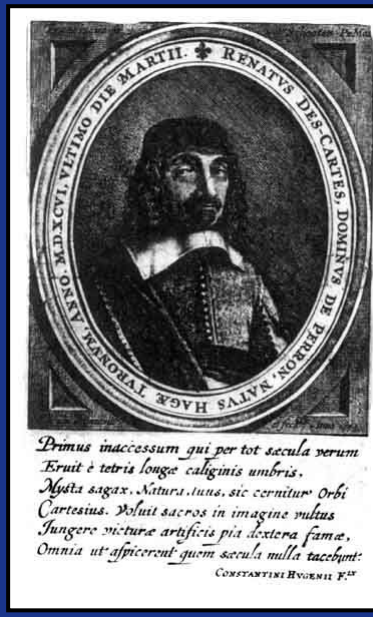
age: 18 - 19



STUDY

François Viéte

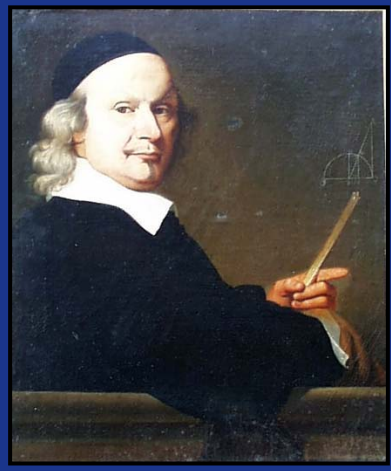
Franz van Schooten



Geometria a Renato Des Cartes

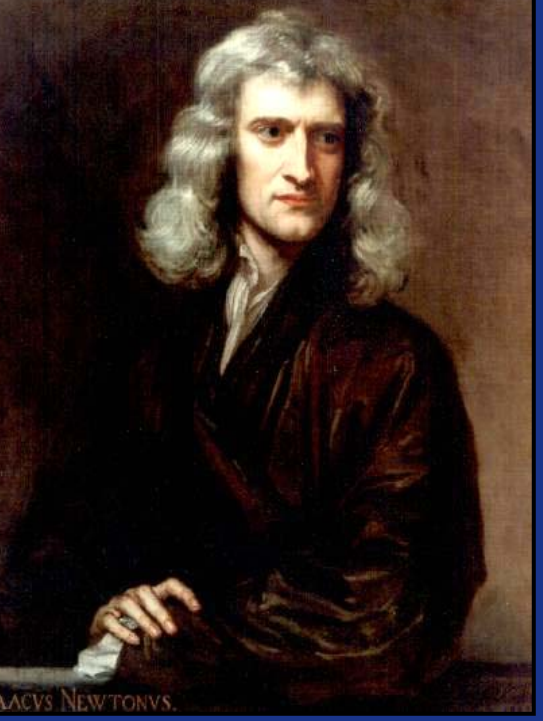
Jan de Witt

Johan Hudde



John Wallis

age: 18 - 19

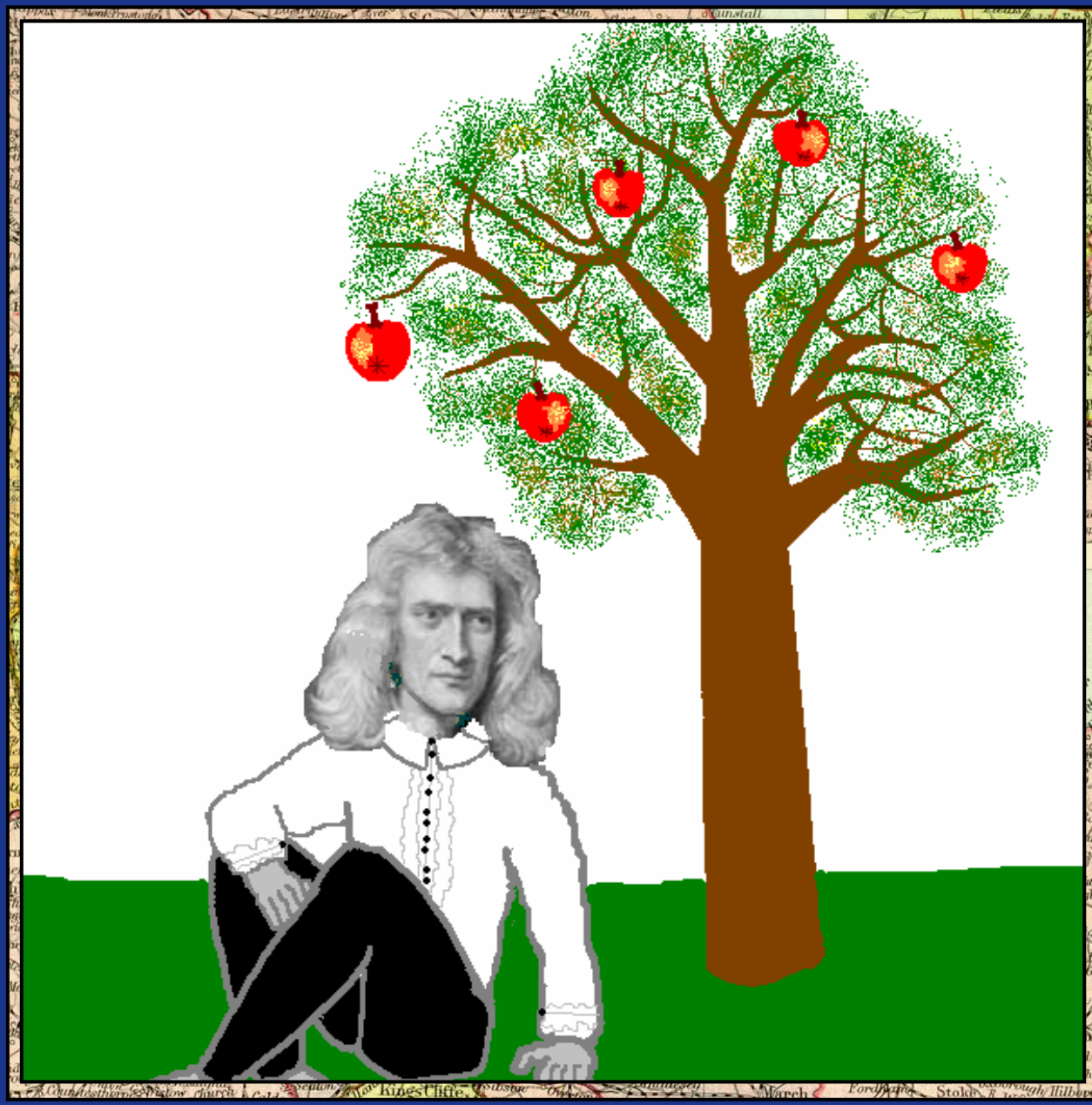


PLAGUE

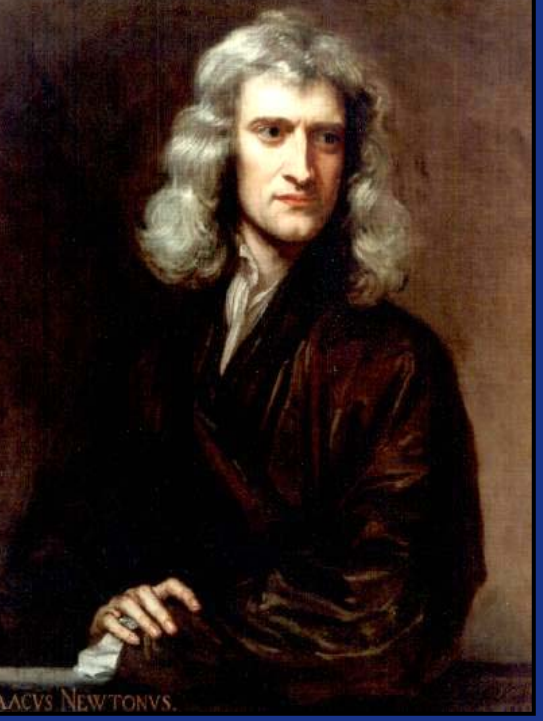
April 1665 Bachelor of Arts

summer 1665 - automn 1667

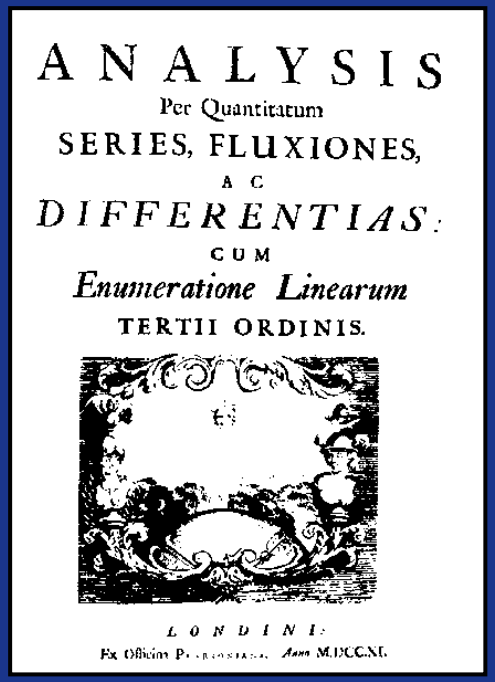
Annus Mirabilis



age: 22 - 24



Fluxional calculus = Integral and differential calculus


ANALYSIS
Per Quantitatum
SERIES, FLUXIONES,
A C
DIFFERENTIAS:
CUM
Enumeratione Linearum
TERTII ORDINIS.

LONDINI:

PLAGUE

April 1665 Bachelor of Arts

summer 1665 - automn 1667

1671, publicated 1736

G. W. Leibnitz

1675

6 a cc d ae 13e ff 7i 31 9a 4o 4q rr 4s 9t 12v x

age: 22 - 24

Matematika:

Euklides 300 př. Kr.
pro n=2

Pascal 1665
pro n∈N

$$(x+a)^n = \sum_{k=0}^{n} \frac{n!}{k!(n-k)!} x^k a^{n-k} = \sum_{k=0}^{n} \binom{n}{k} x^k a^{n-k},$$

Newton 1676
pro n=Z

$$|x| > |a|$$

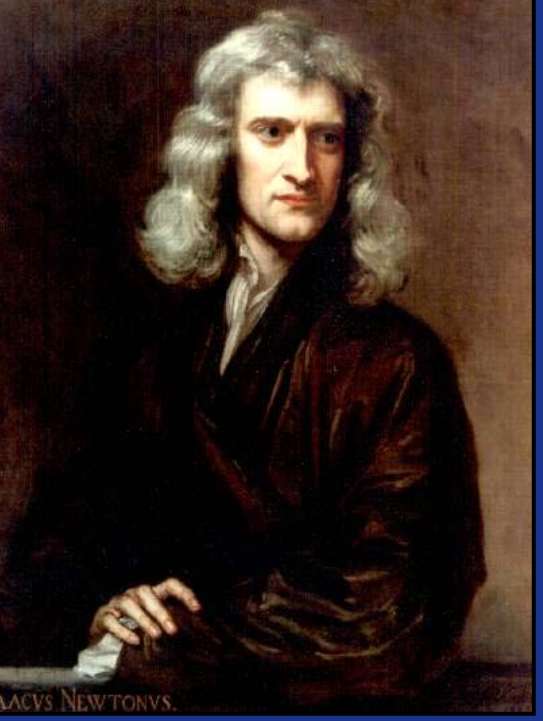
$$(x+a)^{-n} = \sum_{k=0}^{\infty} \binom{-n}{k} x^k a^{-n-k},$$

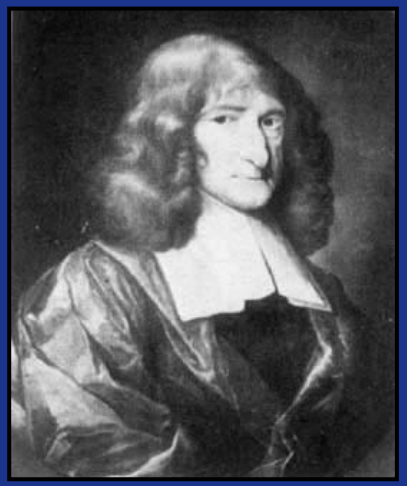
Alchymie:

Optics (1704): …“elements“ consisted of different arrangements of atoms, and atoms consisted of small, hard, billiard ball-like particles…

…explained chemical reactions in terms of the chemical affinities of the participating substances... (vysvětloval chemické reakce pomocí chemické afinity prvků)

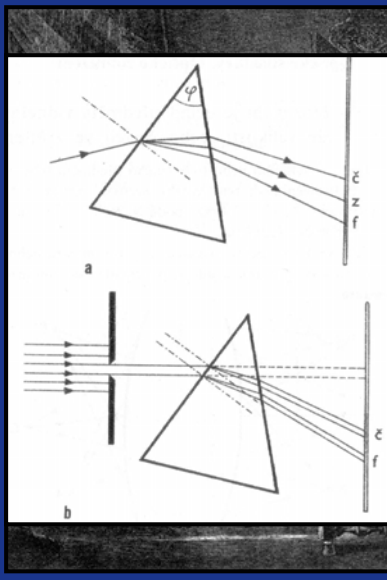
...During the exhumation, it was discovered that Newton had massive amounts of mercury in his body, probably resulting from his alchemical pursuits (prací)...



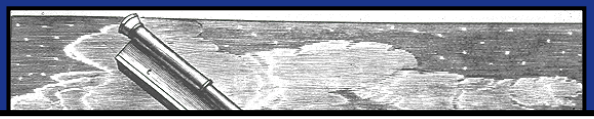


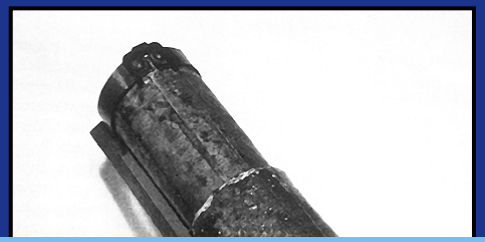
Isaac Barrow

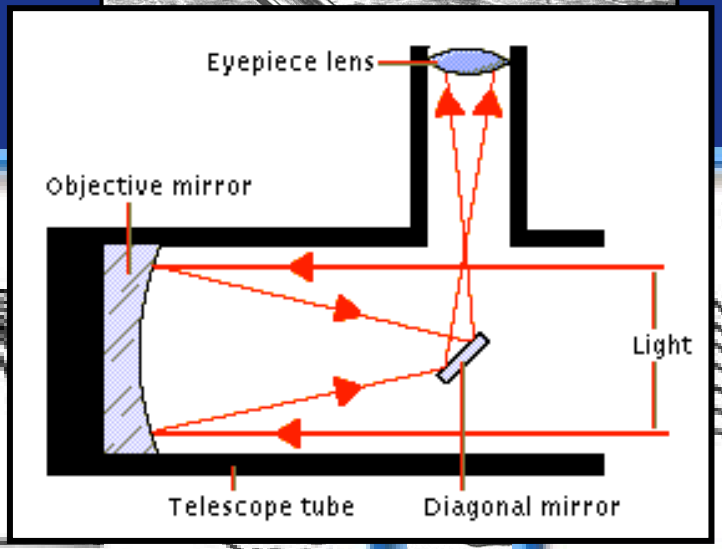
Aristotle

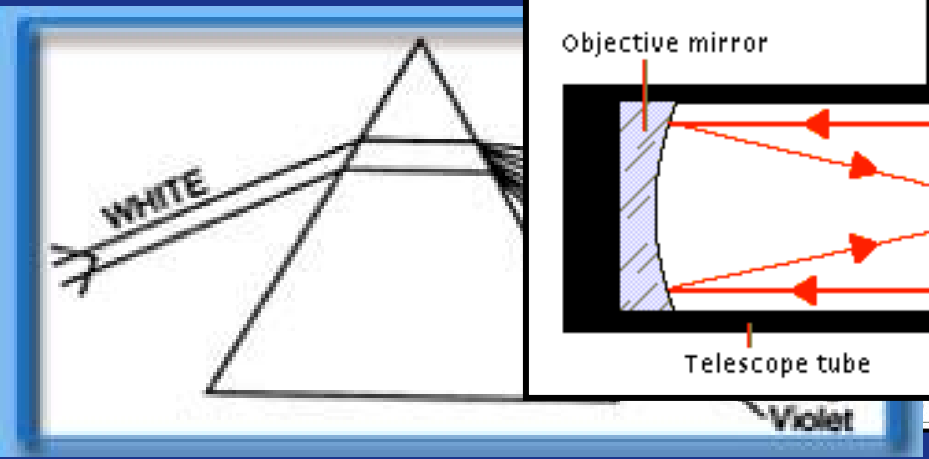


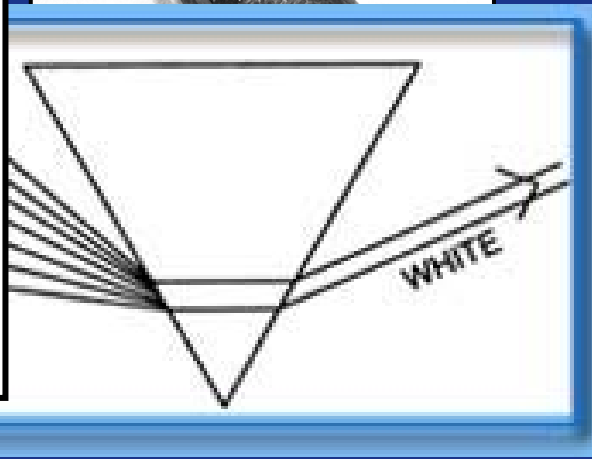
1667 Cambridge re-entered

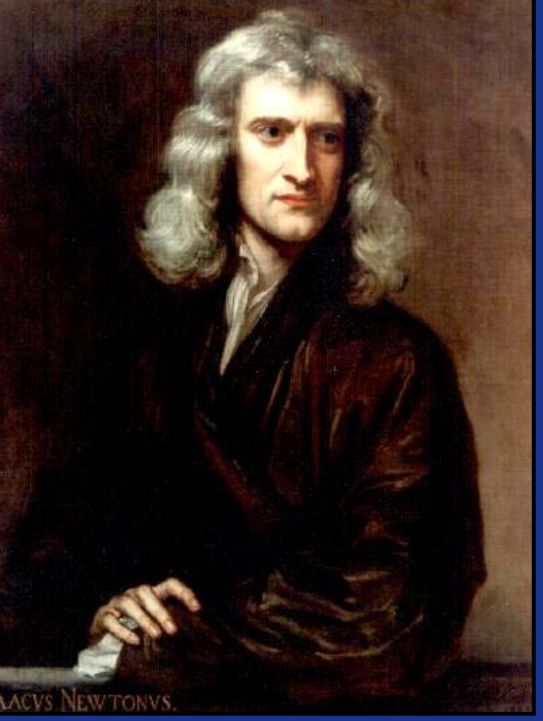












February 1672 published „New theory of light and colours“

Christian Huygens

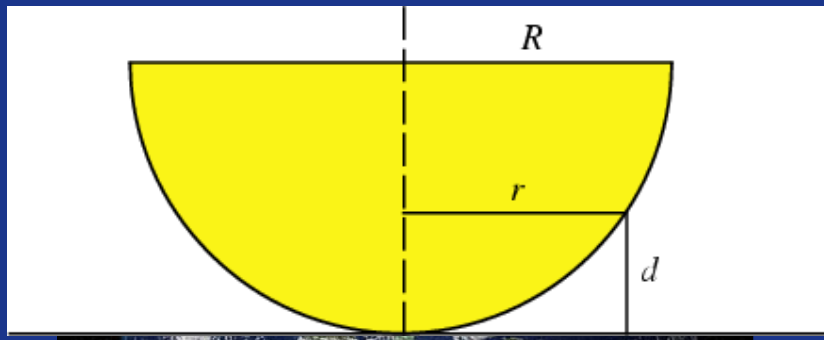
Optics, or a treatise of the reflexions, inflektions and colours of light

1704

I. investigations of the colours of thin sheets

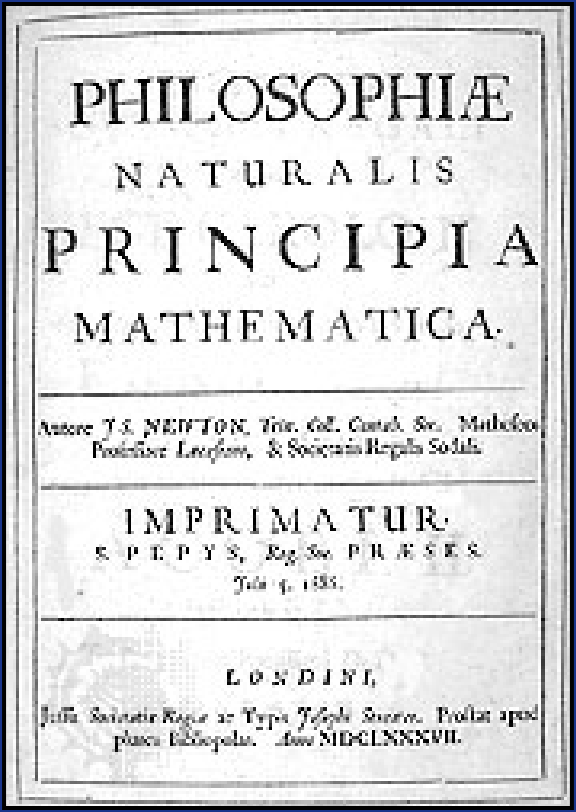
II. 'Newton's rings'

III. diffraction of light



1685: De Motu . ... *all matter attracts all other matter with a force proportional to the product of their masses and inversely proportional to the square of the distance between them...*

1687: Philosophiae naturalis principia mathematica


PHILOSOPHIÆ
NATURALIS
PRINCIPIA
MATHEMATICA.

Autore J S. NEWTON, Trin. Coll. Cantab. Soc. Matheseos Professore Lucasiano, & Societatis Regalis Sodali.

IMPRIMATUR.
S. PEPYS, Reg. Soc. PRÆSES.
Julii 5. 1686.

LONDINI,
Jussu Societatis Regiæ ac Typis Josephi Streater. Prostat apud plures Bibliopolas. Anno MDCLXXXVII.

1. Law of inertia

... The Principia represents the thought and study of more than 20 years, and it ranks in importance with Ptolemy's Almagest and Copernicus's De Revolutionibus...

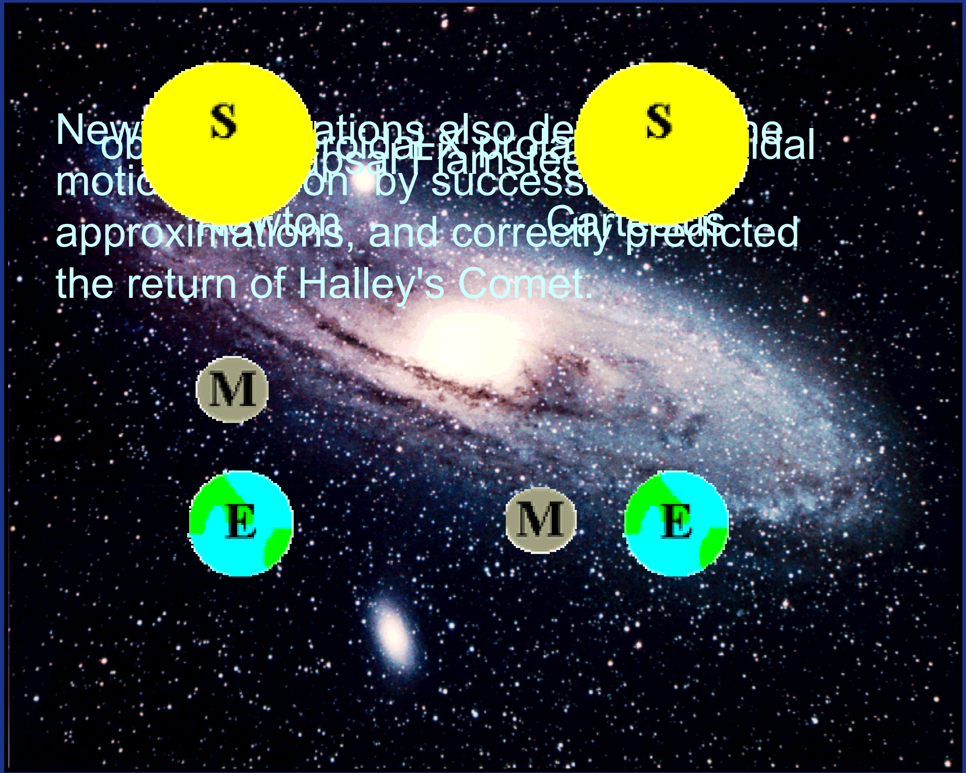
2. Law of acceleration proportional to force

3. Law of action and reaction

Law of universal gravitation

Merits:

Matter	Space
Mass	Time
Force	Momentum



age: 42 - 44

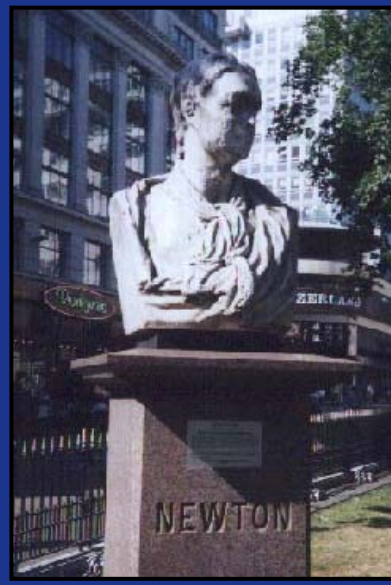
1685: De Motu . ... *all matter attracts all other matter with a force proportional to the product of their masses and inversely proportional to the square of the distance between them...*

1687: Philosophiae naturalis principia mathematica

1687: Memorandum against catholic College

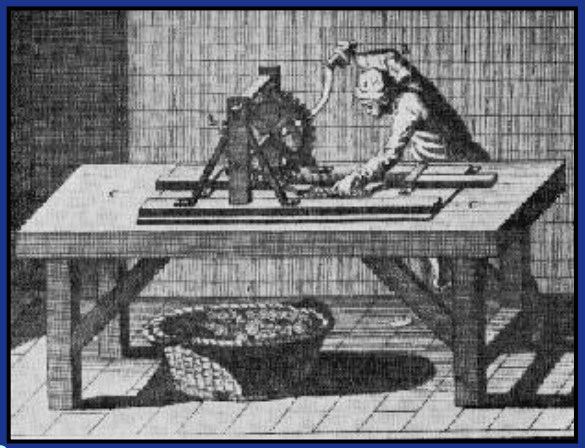
1689:

Houses of Parliament



Bust in Leicester square

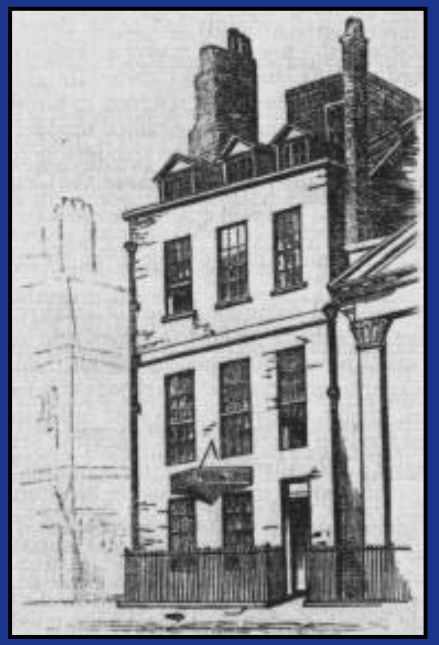
1696:



age: 42 - 53

1703: President of the Royal Society

1705: Knighted by Queen Anne



35 St Martins Street

age: 60 - 62

1725 - 27: Kensington

+ 20. March 1727 in a sleep:

"If I have seen further than other men, it is because I stood on the shoulders of giants."

Isaac Newton

Who, by vigor of mind almost divine, the motions and figures of the planets, the paths of comets, and the tides of the seas first demonstrated.

(Ten, kdo silou mysli z voží vůle poprvé dokázal pohyby a tvary planet, dráhy komet a slapové jevy moří.)

age: 82 - 84

Sources:

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Top sources:

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http://www.newton.cam.ac.uk/newton.html
http://aldebaran.cz/astrofyzika/gravitace/newton.html
http://mathworld.wolfram.com

Isaac Newton Resources

ere at the Isaac Newton Institute for Mathematical Sciences, we are often asked about Newton's life and works. There are already any excellent and informative Web sites and books about Newton, so rather than duplicate those, we have put together a guide to ome of the places, both real and virtual, where you can find out more.

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he Newton Institute

The Isaac Newton Institute for Mathematical Sciences is an international research institute running a series of visitor programmes across the spectrum of the Mathematical Sciences. Established in 1992, the 350th Anniversary of Newton's birth, the Institute itself has no direct historical links with Newton, but was named after him because of his great achievements in the fields of mathematics, optics, physics and astronomy. The Newton Institute continues in this tradition of crossing the boundaries between scientific disciplines.

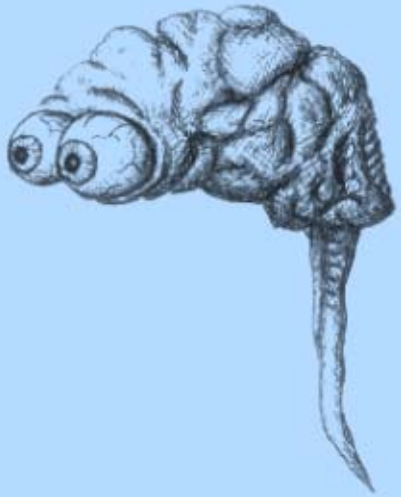
The Newton Institute's Home Page

A brief history of the Institute

Books about Newton in the Institute Library

NEWTONŮV GRAVITAČNÍ ZÁKON

Na této stránce naleznete:



rocha historie

vní gravitační experimenty provedl *Galileo Galilei* (1564-1642). Sledoval volný pád, šikmý vrh, pohyb po nakloněné rovině a závislost periody kyvadla na délce
věsu. Objevil základní zákony těchto pohybů, včetně zákona o skládání rychlostí. Poprvé v dějinách použil experiment k ověření myšlenkových konstrukcí.

ARCH
go
DEX BY SUBJECT
gebra
plied Mathematics
lculus and Analysis
screte Mathematics
undations of Mathematics
ometry
story and Terminology
mber Theory
obability and Statistics
creational Mathematics
pology
PHABETICAL INDEX
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Qs
HAT'S NEW
NDOM ENTRY
A CONTRIBUTOR
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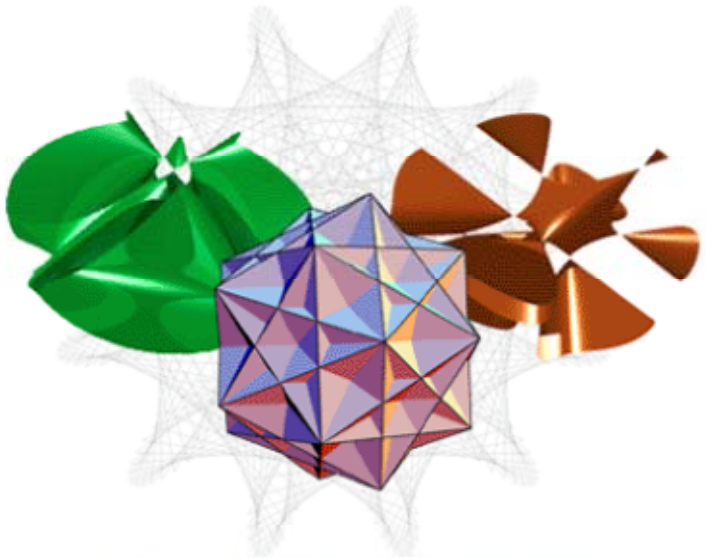

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