

Math Club 3

- ▶ Math Club for Grades 4 - 6
- ▶ Develop creative problem solving skills.
- ▶ Students participate in MOEMS Math Olympiads.
- ▶ Introduce advanced mathematical concepts in probability, combinatorics and codes and ciphers.
- ▶ Students immerse in mathematics by working on an investigative project.

Instructor: Vibha Mane

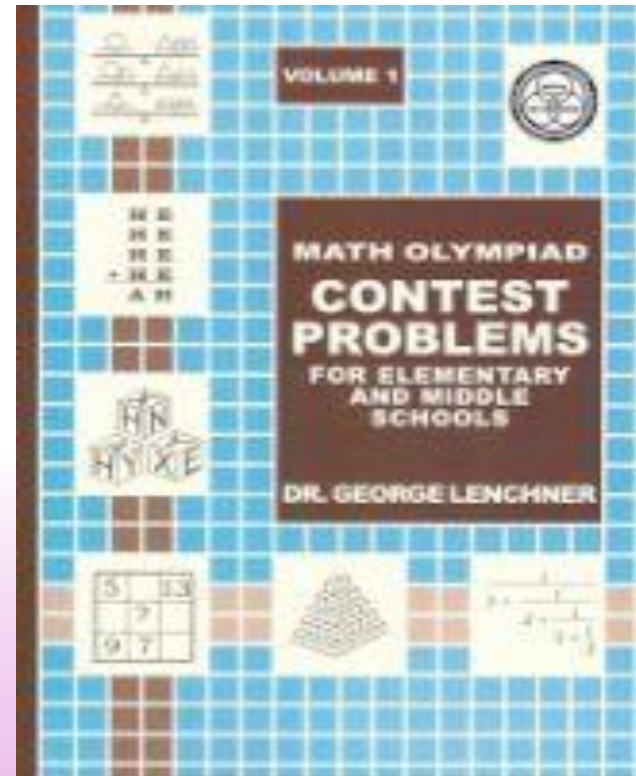
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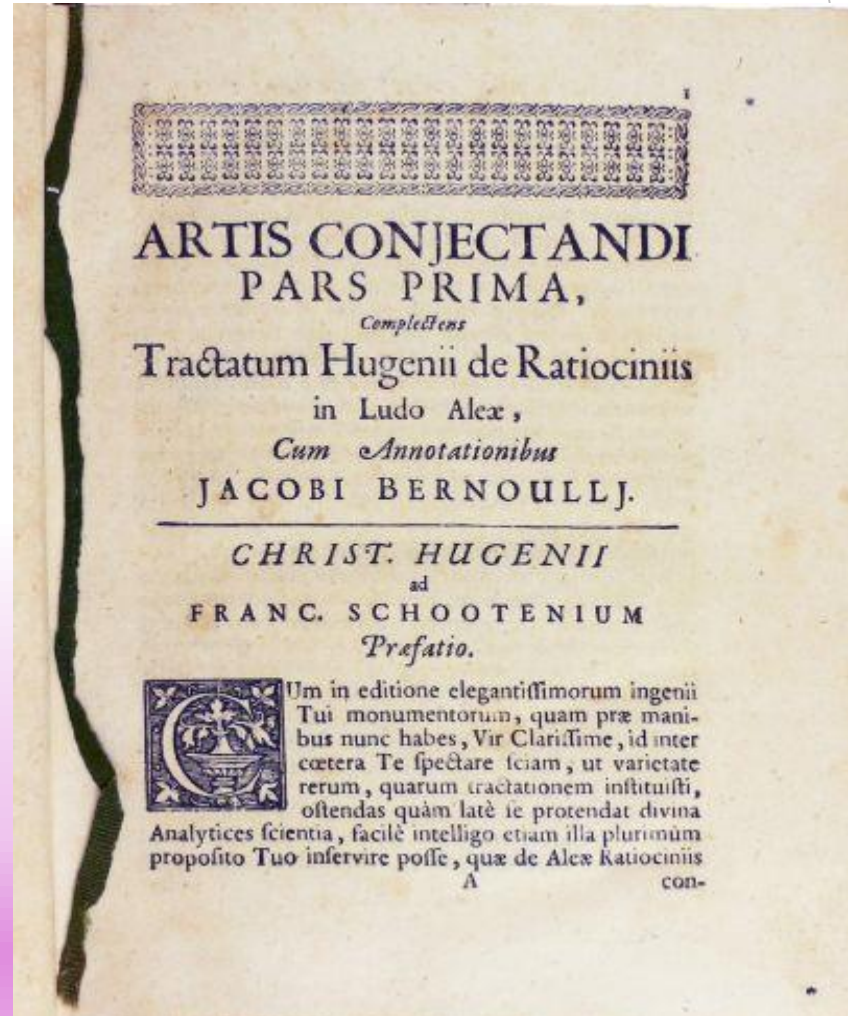
MOEMS Math Olympiad

- ▶ Math Olympiads for Elementary and Middle School (MOEMS).
- ▶ Strengthen problem solving skills.
- ▶ Practice problems in-class.
- ▶ Olympiad packets handed out.
- ▶ Five contests, held once a month, from November through March.
- ▶ All Math Club students are invited to participate.



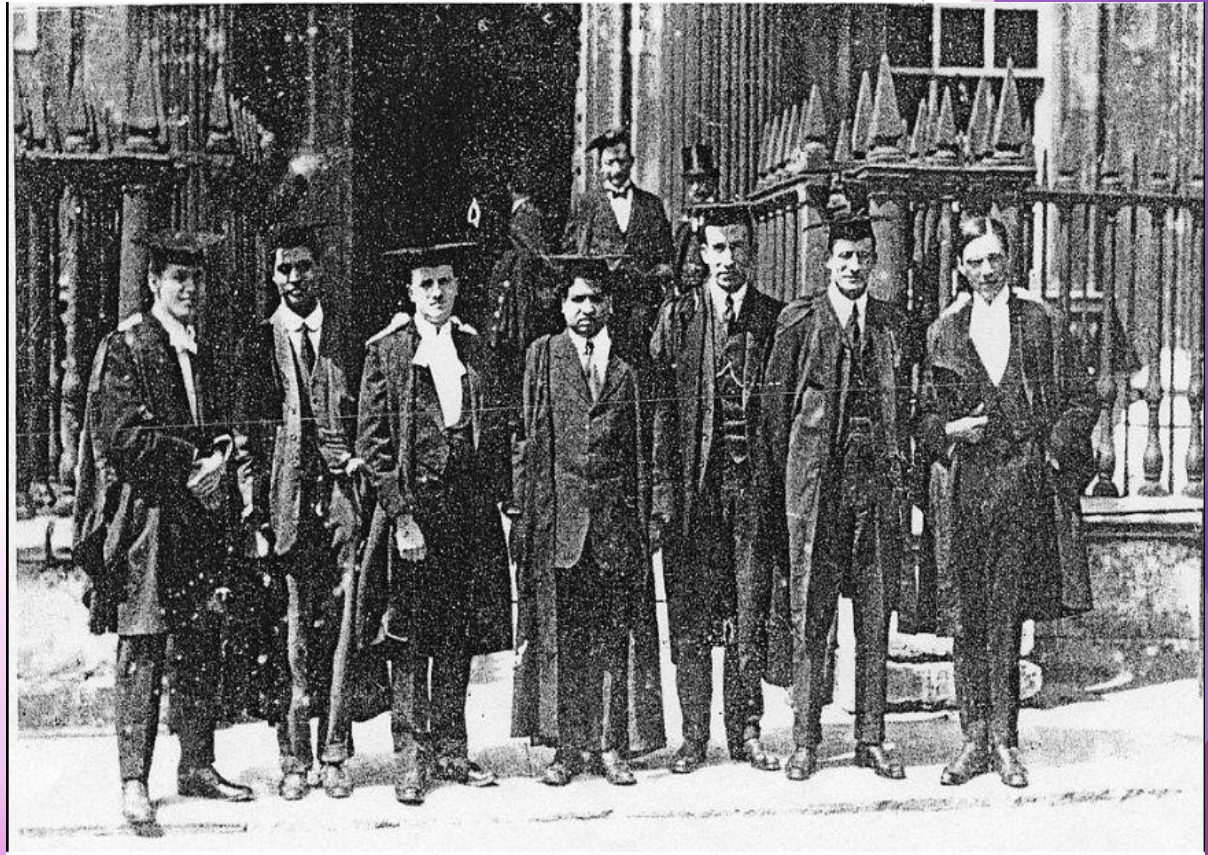
Advanced Math Concepts - Probability

- ▶ Counting principles, permutations, combinations, partitioning.
- ▶ Basic probability concepts.
- ▶ Bernoulli and binomial trials.
- ▶ Experiments with dice and coins.
- ▶ Experiments illustrating law of large numbers.
- ▶ Story of Jacob Bernoulli.



Advanced Math Concepts - Codes and Ciphers

- ▶ Reduce numbers modulo a positive integer.
- ▶ Convert numbers from decimal to base-26.
- ▶ Kids-RSA: middle school version of encryption and digital signature.
- ▶ Story of Ramanujan



Investigative Projects - I

- ▶ Investigate and prepare a presentation on the life of a famous mathematician.
- ▶ Study early life, struggles, famous work and fun facts.
- ▶ Students work in teams of three.

Investigative Projects - II

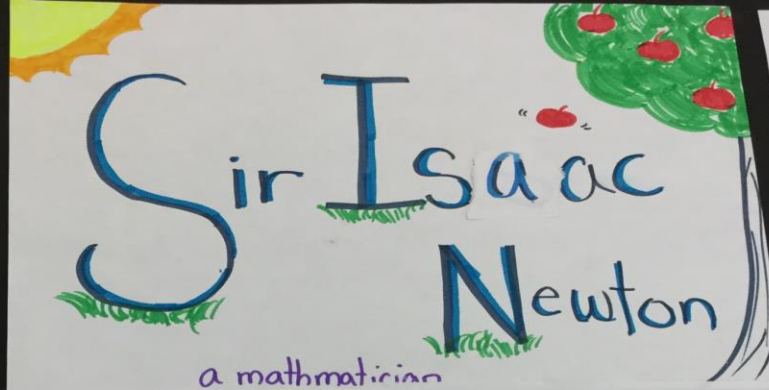
EDUCATION

- Newton went to Cambridge, but he left Cambridge because of an outbreak of Bubonic Plague.
- Newton was a bad student when he was young.
- His original parents sent him to the Clark's family to go to school.

- ## EWTON'S 3 LAWS


Every object that is in motion stays in motion unless acted on by an outside force.

Every action has an equal and opposite reaction.



FUN FACTS

- ## Newton's Work and accomplishments



Picture

Sir Isaac Newton was a remarkable student. He was His stepfather died and his mother needed help on her farm, so he home.



- Newton was a did lectures on such as optics
- He invented a also explained worked.
- He also showed light could be into many a prism
- His ideas that many but that c
- He developed and cal

Investigative Projects - III

Origin

Pierre De Fermat was born in 1607. He was born in a commune, Beaumont-de-Lomagne, France. His mother's name is Claire De Long, his father's name is Dominique Fermat. Pierre de Fermat was a French lawyer at the Parlement of Toulouse, France, and a mathematician who is given credit for early developments that led to infinitesimal calculus, including his technique of adequality. He studied in the fields of Mathematics and Law.

Early Life Can't...

Meanwhile, Descartes had observed the same basic principle of analytic geometry: that equations in two variable quantities define plane curves. Because Fermat's introduction to *l'art* was published in late 1679, the exploitation of their discovery, initiated in Descartes's *Geometrie* of 1637, has since been known as Cartesian geometry. In 1631 Fermat received a bachelor in law from the University of Orléans. He served in the local parliament of Toulouse, becoming councillor in 1634. Sometime before 1638 he became known as Pierre de Fermat, though the authority for this designation is uncertain. In 1638 he was named to the Criminal Court.

Achievements

He single-handedly revolutionized modern number theory as well as made significant contributions in areas such as probability theory, mathematical statistics, analytic geometry and optics. Some of his contributions include Fermat's Little Theorem and Fermat's Last Theorem.

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Early Life

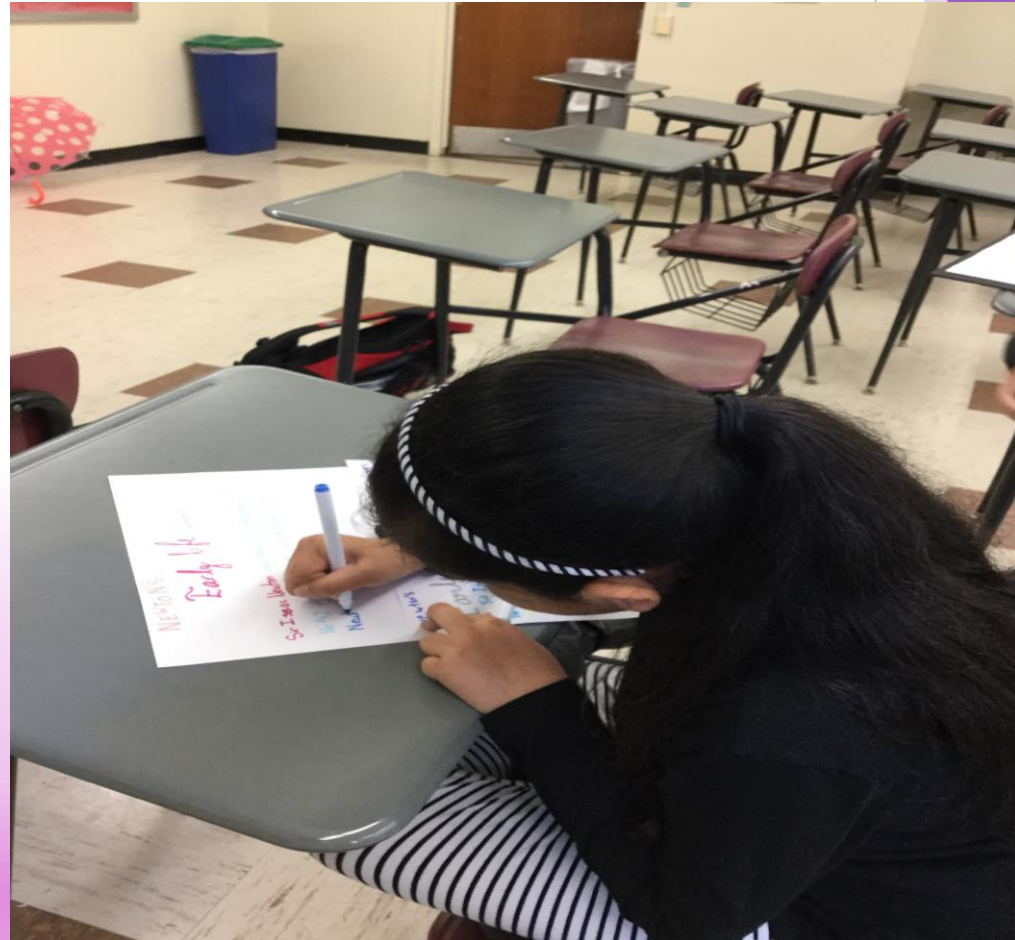
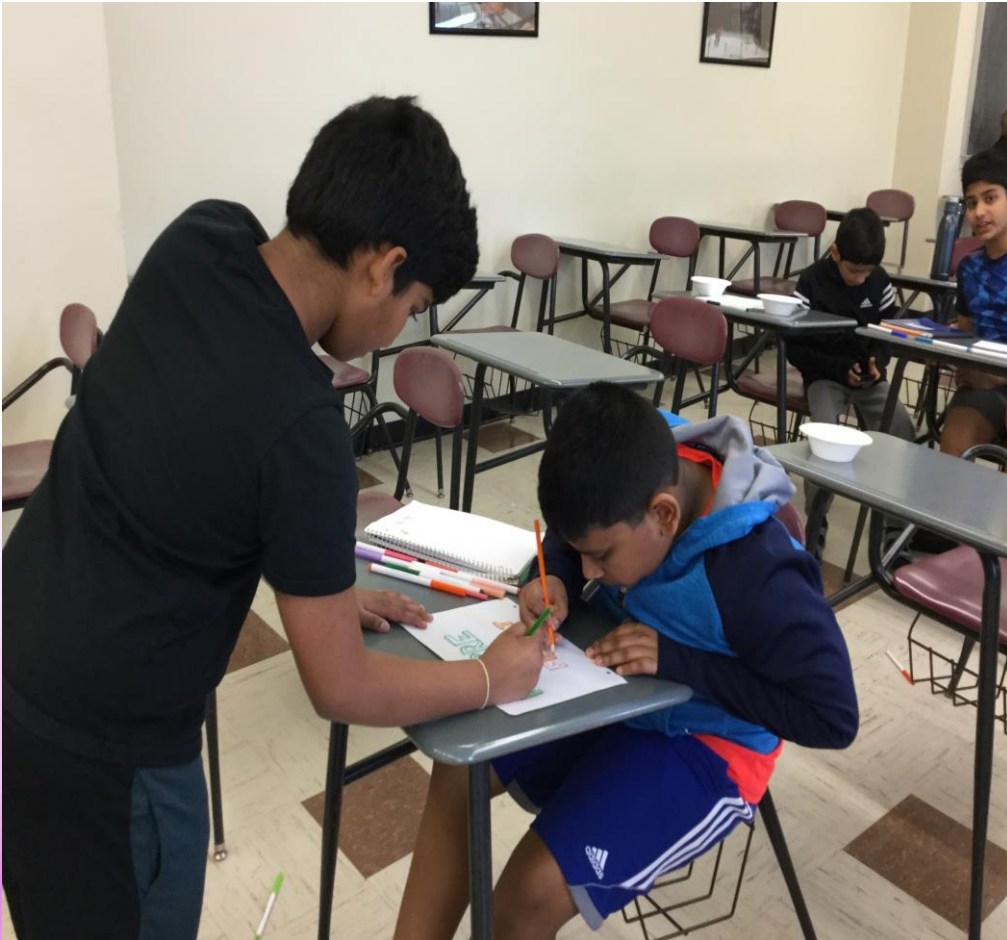
Very little is known about Fermat's early life and education. He was of French origin and received his primary education in a Franciscan school. He studied law at Toulouse and became an advocate. Fermat started to like foreign languages, classical literature, and natural science and mathematics. Fermat followed the custom of his day in composing conjectures "restrictions" of last works of antiquity. By 1659 he had been studying the long-lost *Plane Loci* of Apollonius, the Greek geometer of the 3rd century B.C. He soon found out that the study of lines or sets of points with certain characteristics could be facilitated by the application of algebra to geometry through a coordinate system.

Struggles

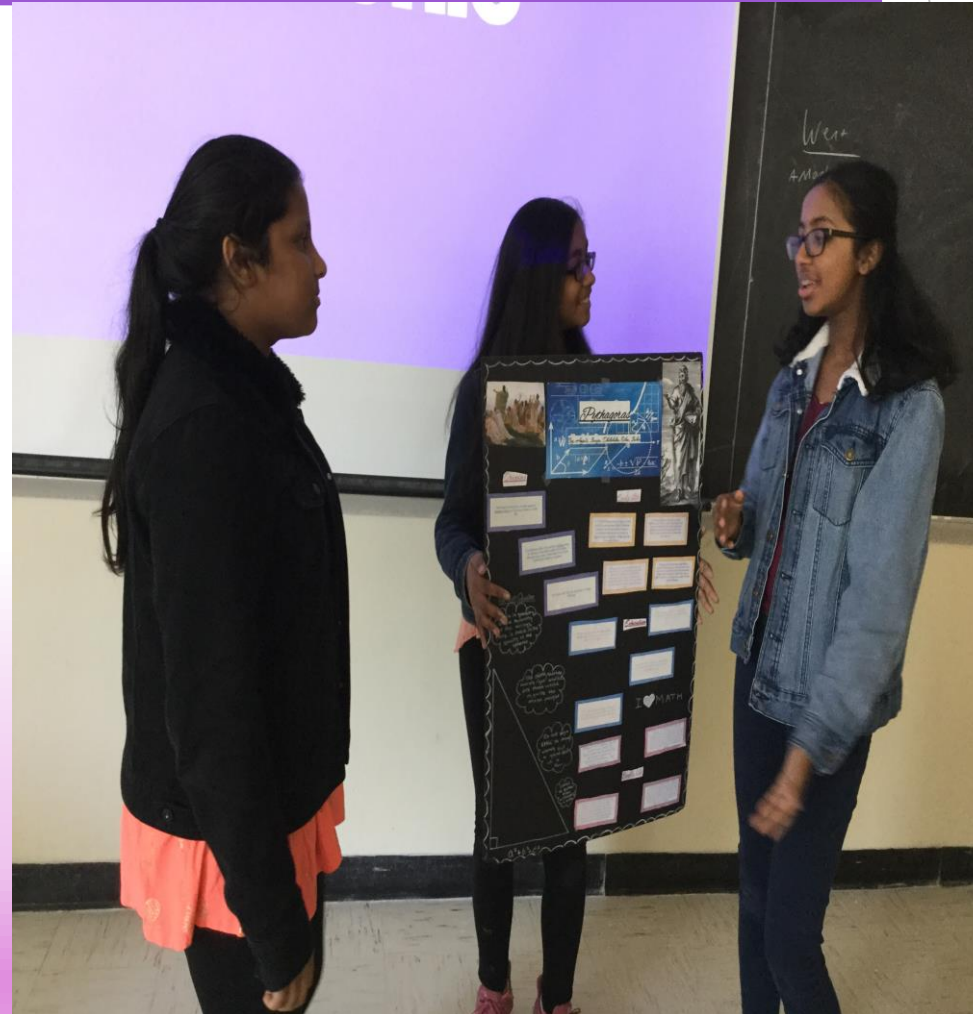
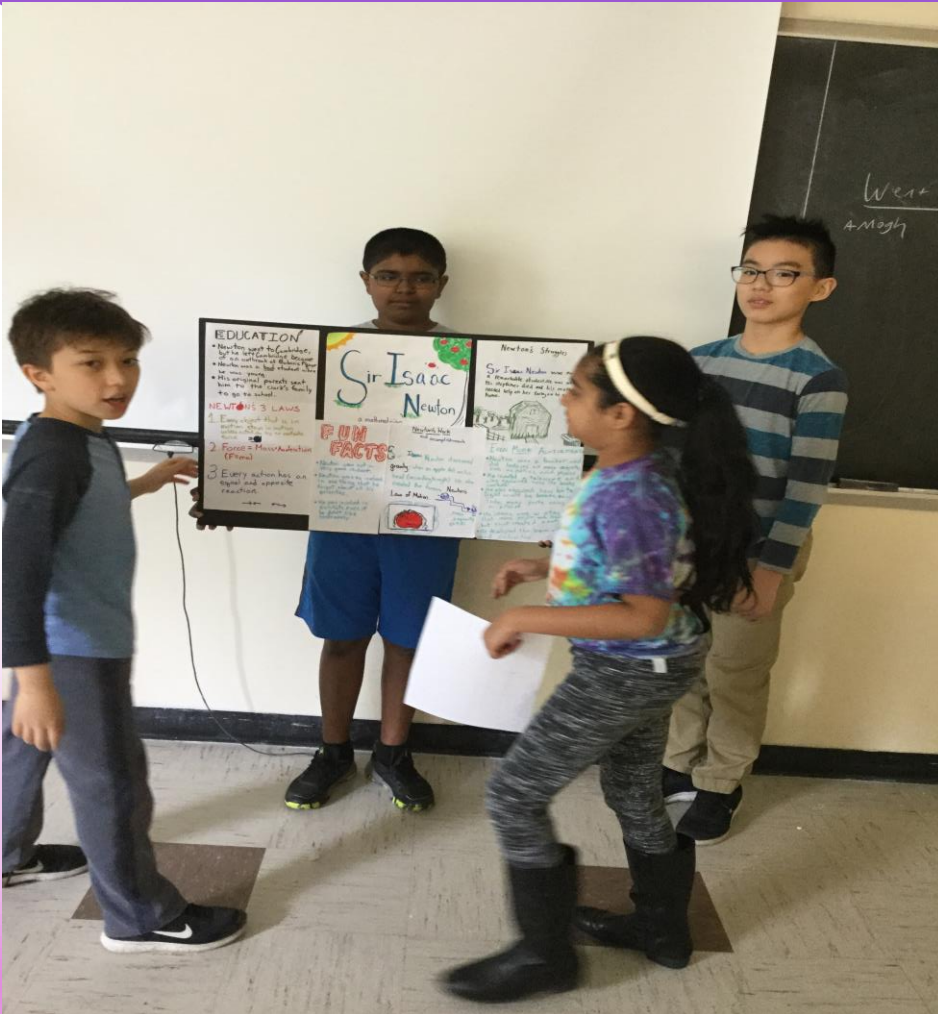
Formist data have many struggles in the mainly because his family was very poor and he had some (there was an fall from 1633 and 1651) when a combination of properties of sine and cosine (which almost killed him) kept him largely out of mathematical work. He was also with other cartesian rivals. Descartes had sought to justify the first law through a geometrically rigorous in the course of the more modern in the rejection. Several other later works appeared to be in conflict with the pace suggested by Galileo's data. This data was not accepting his method of maxima and minima and was not making the assumption that the angle of the descent medium. Formist data also left the law of refraction. The first measuring the speed of light was found later in 1676. The century later a century later, the speed of light was found to be constant.

By Anish Pytz, Ishanth Guduru and
Anoop Teesireddy

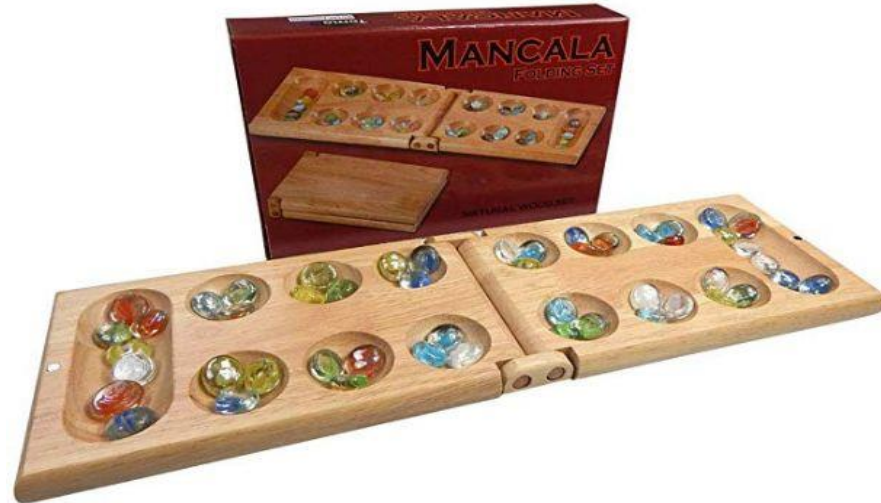
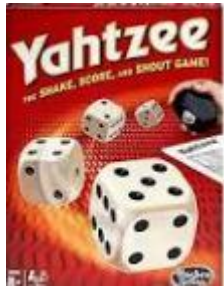
Investigative Projects - IV



Investigative Projects - V



Fun Stuff - Games



Fun Stuff - Games



Fun Stuff - Movies

