Cheenta Academy
for Olympiad & Research

With Cheenta, be Exceptional at Non-Routine Problem Solving

Path to Ivy League

Olympiad

Research

Leadership

Whatsapp
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support@cheenta.com

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Cheenta Academy
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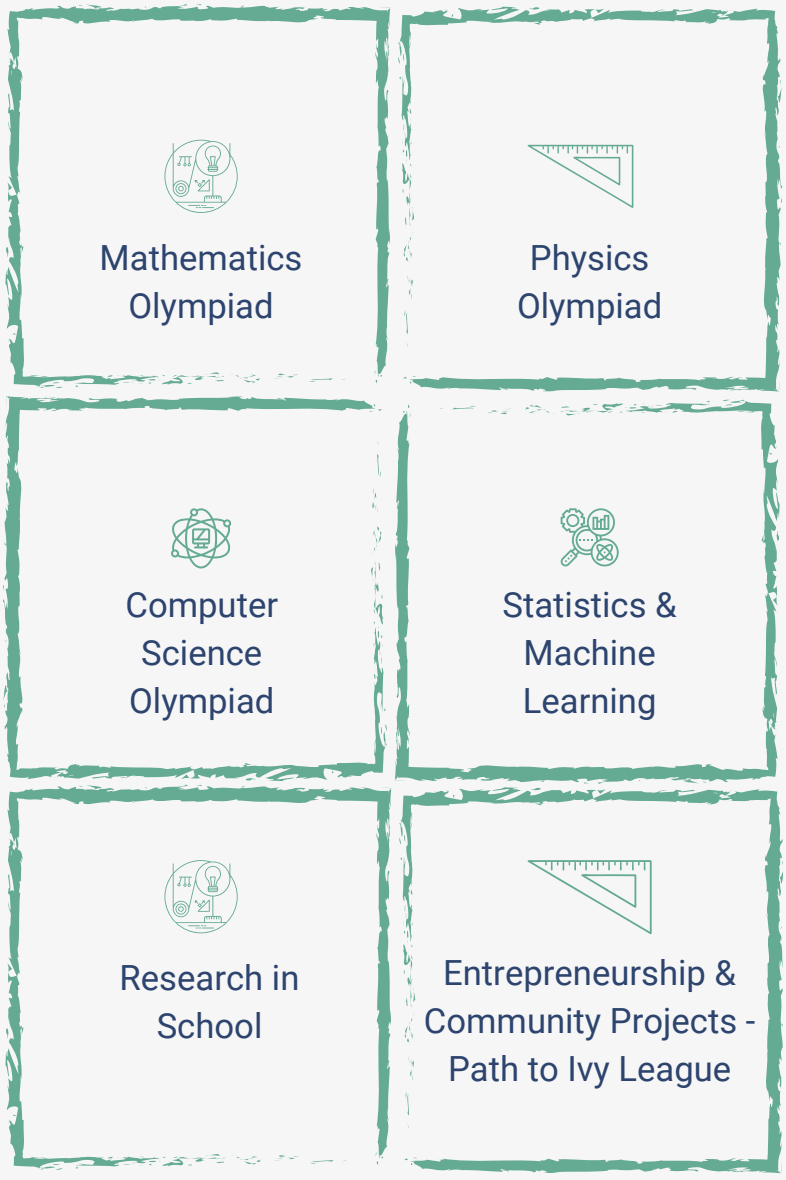
Outstanding Olympiad Programs,
School Research, Leadership Projects,
ISI-CMI Entrance Programs since 2010



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Success Stories Since 2010.

Indian National Math Olympiad 2024

In 2024, only 78 students from all over India qualified in the Indian National Math Olympiad (INMO). 10 of them were from Cheenta.

Indian Statistical Institute (BStat - BMath) and Chennai Mathematical Institute (BSc. Math Entrance) 2023

In 2023, in the entrances of ISI and CMI, 13 students from Cheenta ranked in top 100 in the entire country.

American Math Competition 10 and 12

In 2023, in the American Math Competitions, 11 students from Cheenta ranked globally.

Research and Mentoring

Cheenta students who participated in Research and Mentoring programs are in Stanford, Harvard, Cambridge, MIT. (See our website for their interviews).

IOQM 2024

In 2024, only 39 students from Cheenta qualified for RMO. About 30% students who attended our programs qualified in IOQM. Among the students who attended the problem solving classes regularly, success rate is about 84%.

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Cheenta Academy
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Outstanding Math Olympiad Programs

Grades 1 to 6

Math Olympiad Foundation program

This program is for **Math Kangaroo** and **Australian Math Competition** and similar non-routine olympiads.

3 Programs: Level 1, 2 & 3

Philosophy

Fields Medalist Cedric Villani's team in France investigated methods of teaching mathematics to students in elementary school. A translation of the report is available in Cheenta. We use some of those principles in our foundation program. Additionally we use techniques from Berkeley and Russian math circle.

At this stage, children are gently exposed to interesting problems, algorithmic thinking, mathematical games and hands on activities related to math.

Live Classes - 2 per week

Weekly 2 sessions with non-routine homework problem set. Option of both group sessions and one-on-one sessions.

24/7 Software Access

Access to Panini8, our AI driven software for adaptive practise, real time progress reporting, doubt clearing and timed mock tests.

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Beautiful mathematical science

Our Method

Solving an olympiad problem or a research problem in later phase, involves 'moments of inspiration'. One attempt at Cheenta (through careful curriculum design and teaching methodology) is to induce such a thing in a student. *To be honest, this is a never-ending quest*.

How do we guide a student to a moment of happiness that we personally have experienced? We do not know for sure. We do have some guesses (derived from our experiments in pedagogy in the last 15 years).

- Guess 1: Expose the child to **interesting problems**.
- Guess 2: Keep a **non-linear track** of learning. Problems and discussions should derive nuggets from seemingly unrelated part of mathematics.
- Guess 3: Let students **teach other children**.
- Guess 4: Let the kids hear and read about experiences of true stalwarts (in Newton's words or later as in Hawking's title, they should **stand on the shoulders of giants**).

A great selection of books, authored by real stalwarts may transform the journey of student into the world of mathematical science. On the other hand shortsighted treatises, manual-styled books designed solely for contest training, do not have these desired properties.

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Math Book Recommendations

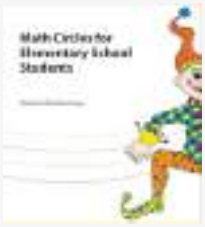
for Grades 1 to 6

Choice of book is a very sensitive issue. It is critical to choose the right ones. Books may either inspire students or drive them away.

Rule of the thumb: Choose books authored by real mathematicians and scientists who have worked in the field of innovation. Do not use 'manual' type books peddled by publication houses who are hiring authors to address market demand. Here are some examples that we recommend in our programs. New books are suggested almost every month.

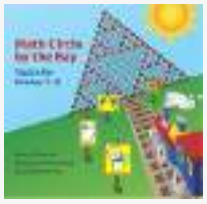
Math from Three to Seven: The Story of a Mathematical Circle for Preschoolers

Alexander Zvonkin



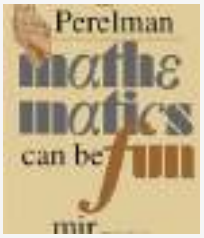
Math Circles for Elementary School Students

Natasha Rozhkovskaya



Math Circle by the Bay: Topics for Grades 1-5

Laura Givental, Maria Nemirovskaya, Ilya Zakharevich



Mathematics can be fun

Yakov Perelman

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Outstanding Math Olympiad Programs

Grades 7 & 8

Math Olympiad Middle School program

This program is for **NMTC, University of Waterloo Contests, American Math Competition (AMC 8, AMC 10 - beginner)** and similar non-routine math contests.

2 Programs: Level 4 & 5

Philosophy

In middle school programs, the key focus is on rigor. Apart from exposure to challenging problems, students are introduced to mathematical proofs. Special attention is given to *writing full solutions* which are graded. Writing proofs is a critical aspect of preparation.

Live Classes - 6 per week

Two weekly mandatory sessions: Concept Class, Homework Class. Option for group and 1-on-1 class.

If the student is able to solve homework problems regularly, then access to four additional weekly problem solving workshops.

24/7 Software Access

Access to Panini8, our AI driven software for adaptive practise on AMC 8, NMTC and other contest problems, topic-wise practise, real time progress reporting, doubt clearing and timed mock tests.

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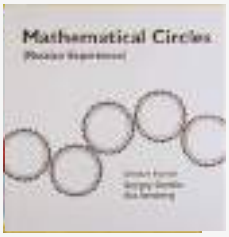
Math Book Recommendations

for Grades 7 & 8

Choice of book is a very sensitive issue. It is critical to choose the right ones. Books may either inspire students or drive them away.

Rule of the thumb: Choose books authored by real mathematicians and scientists who have worked in the field of innovation. Do not use 'manual' type books peddled by publication houses who are hiring authors to address market demand. Here are some examples that we recommend in our programs. *New books are suggested almost every month.*

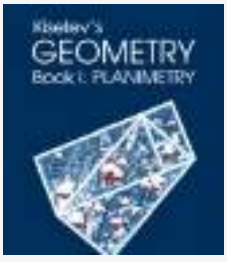


Mathematical Circles (Russian Experience)

Dmitry Fomin, Sergey Genkin, Ilia Itenberg

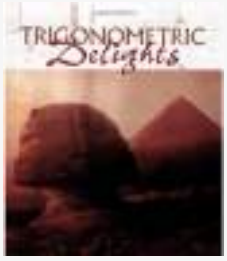
Algebra

Alexander Shen and Israel Gelfand



Kiselev's Geometry: Planimetry

Alexander Givental



Trigonometric Delights

Eli Maor

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Outstanding Math Olympiad Programs

Grades 9 - 12

Math Olympiad Advanced Program

This program is for **IOQM, AMC 10, AMC 12** and similar non-routine math contests. There are advanced levels for AIME, RMO, INMO etc.

3 Programs: Level 6, 7 & 8

Philosophy

In advanced school programs all the classes are problem driven in nature. This essentially means that each session *starts with a problem* and then backtracks into associated concepts. Special attention is given to *writing full solutions* which are graded.

Live Classes - 6 per week

Two weekly mandatory sessions: Concept Class, Homework Class. Option for group and 1-on-1 class.

If the student is able to solve homework problems regularly, then access to four additional weekly problem solving workshops.

24/7 Software Access

Access to Panini8, our AI driven software for adaptive practise on AMC 8, NMTC and other contest problems, topic-wise practise, real time progress reporting, doubt clearing and timed mock tests.

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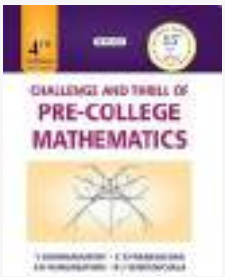
Math Book Recommendations

for Grades 9 to 12

Choice of book is a very sensitive issue. It is critical to choose the right ones. Books may either inspire students or drive them away.

Rule of the thumb: Choose books authored by real mathematicians and scientists who have worked in the field of innovation. Do not use 'manual' type books peddled by publication houses who are hiring authors to address market demand. Here are some examples that we recommend in our programs. *New books are suggested almost every month.*



Challenge and Thrill of Pre-College Mathematics

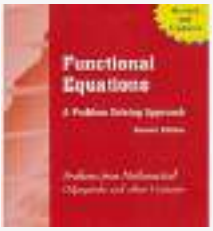
V Krishnamurthy, C R Pranesachar, K N Ranganathan, B J Venkatachala

Principles and Techniques in Combinatorics

Chuan Chong Chen, Khee-meng Koh

Complex Numbers from A to ...Z

Titu Andreescu, Dorin Andrica



Functional Equations, A Problem Solving Approach

B.J. Venkatachala

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ISI & CMI Entrance Program, STEP

Grades 11 - 12

Advanced Mathematics Program

This program is for **Indian Statistical Institute's BStat - BMath Entrance, Chennai Mathematical Institute's BSc Math Entrance.** It is also useful for STEP Entrance from Cambrige University.

2 Programs: Level 6 & 9

Scope

ISI & CMI entrances require olympiad standard skills in topics like number theory, geometry, algebra and combinatorics. They also contain challenging problems in calculus and other high school topics. Our program focusses on problem driven discussion on these topics with timed mock tests.

Live Classes - 6 per week

Two weekly mandatory sessions: Concept Class, Homework Class. Option for group and 1-on-1 class.

If the student is able to solve homework problems regularly, then access to four additional weekly problem solving workshops.

24/7 Software Access

Access to Panini8, our AI driven software for adaptive practise with hints on TOMATO problems, past papers, real time progress reporting, doubt clearing and timed mock tests.

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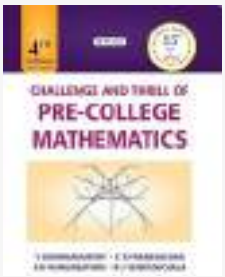
Math Book Recommendations

for ISI, CMI Entrance

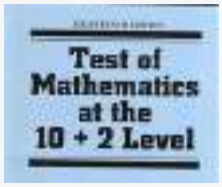
Choice of book is a very sensitive issue. It is critical to choose the right ones. Books may either inspire students or drive them away.

Rule of the thumb: Choose books authored by real mathematicians and scientists who have worked in the field of innovation. Do not use 'manual' type books peddled by publication houses who are hiring authors to address market demand. Here are some examples that we recommend in our programs. *New books are suggested almost every month.*



Challenge and Thrill of Pre-College Mathematics

V Krishnamurthy, C R Pranesachar, K N Ranganathan, B J Venkatachala



Test Of Mathematics At The 10+2 Level

Indian Statistical Institute

Problems In Calculus in One Variable.

I.A. Maron

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Non-Routine Physics Programs

Grades 5 - 7

Non-Routine Physics Foundation program

This program is experiment and problem solving based introduction to Physics. The core problem set is from **All Russia Physics Olympiad**

Philosophy

Physics is best communicated through hands-on experiments, computational simulations and interesting theoretical problems. Cheenta physics programs use this principle and includes theoretical and experimental physics in an integrated manner.

Live Classes - 2 per week including virtual lab

Two weekly mandatory sessions: Concept Class, Homework and Lab Session.

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Cheenta Academy
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Physics Book Recommendations

for Grades 5 to 7

Choice of book is a very sensitive issue. It is critical to choose the right ones. They may either inspire students or drive them away.

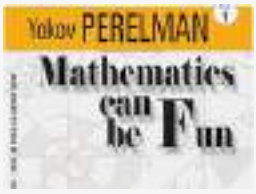
Rule of the thumb: Only choose books authored by real mathematicians and / or scientists who have worked in the field of innovation. Do not use 'manual' type books peddled by publication houses who are hiring authors to address market demand.

The Magic of Reality

Richard Dawkins

Mr Tompkins in Paperback

George Gamow



Physics can be Fun

Yakov Perelman

Build a Lab at Home
Physics needs to be *hands on*.

Gleam in the eye

(Authors) Manish Jain, Ravi Sinha, (Artist) Nidhi Gupta

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Non-Routine Physics Programs

Grades 8 - 10

Physics Olympiad for Beginners program

This program is for **NSEP, NSEJS** Contest, F = Ma and similar Physics Olympiads for students *who know little or no calculus.*

Philosophy

Middle school physics at Cheenta consists of interesting experiments and challenging theoretical problems. Additionally it communicates the thrill of enquiry through research questions. Children are strongly encouraged to build small labs at home.

Live Classes - 2 per week including virtual lab

Two weekly mandatory sessions: Concept Class, Homework and Lab Session.

1 bi-weekly research training session (available in selected timezones)

24/7 Software Access

Access to Panini8, our AI driven software for adaptive practise with hints on NSEP, NSEJS and F=Ma past papers, real time progress reporting, doubt clearing and timed mock tests.

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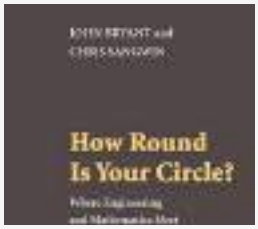
Physics Book Recommendations

for Grades 8 to 10

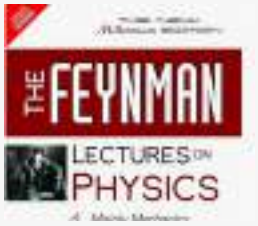
Physics can be Fun

Yakov Perelman



How Round Is Your Circle?: Where Engineering and Mathematics Meet

John Bryant, Chris Sangwin



The Feynman Lectures on Physics (Volume I)

Richard Feynman

Simulated and Computational Experiments
Useful for Cheenta's Research Training Workshops on Physics

Algodoo

Stellarium

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Non-Routine Physics Programs

Grades 11 - 12

Physics Olympiad Advanced program

This program is useful for **NSEP** Contest, **F = Ma**, **InPHO** and IIT - JEE Advanced.

Philosophy

High school physics at Cheenta consists of challenging theoretical problems with a strong dependence on mathematical tools. Additionally it consists of rigorous research training sessions that adds paper reading, simulated experiments and computational physics.

Live Classes - 2 per week including virtual lab

Two weekly mandatory sessions: Concept Class, Homework and Lab Session.

1 bi-weekly research training session (available in selected timezones)

24/7 Software Access

Access to Panini8, our AI driven software for adaptive practise with hints on NSEP and F=Ma past papers, real time progress reporting, doubt clearing and timed mock tests.

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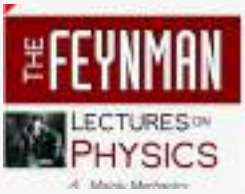
Physics Book Recommendations

for Grades 11-12



The Feynman Lectures on Physics

Richard Feynman

Concepts of Physics, Volume 1 & 2

H.C. Verma

Physics

Halliday, Resnick, and Krane

Introduction to Classical Mechanics

David Morin

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Non-Routine Computer Science Programs

Grades 4 to 6

Computer Science Foundation Program

This program is based on **MIT** Media Lab's Scratch Program. It also incorporates elements of **algorithmic thinking.**

Grades 7 - 12

Informatics Olympiad Program

This program is for **ZCO, ZIO** Contests and similar **Informatics Olympiads**. The advanced levels are for INOI and International Olympiad on Informatics

2 Programs: Informatics Olympiad Junior & Advanced

Live Class - 1 per week (in each level)

One weekly mandatory Concept Class. The weekly session is followed up by homework problem set, programming and algorithm design challenges.

Philosophy

Computer Science programs at Cheenta are mathematical in nature. The core focus is on efficient algorithm designs and competitive programming.

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Computer Science Recommendations

Grades 4 - 6

(For Parents) Mindstorms: Children, Computers, and Powerful Ideas

Seymour Papert

Alice is an innovative block-based programming environment that makes it easy to create animations, build interactive narratives, or program simple games in 3D.

Grades 7 - 12

Programming Challenges: The Programming Contest Training Manual

Steven S. Skiena, Miguel A. Revilla

Looking for a challenge?

Krzysztof Diks

Algorithm Design

Jon Kleinberg, Eva Tardos

Algorithms

Sanjoy Dasgupta, Christos Papadimitriou, Umesh Vazirani

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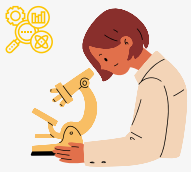

Research in School

Grades 9 - 12

Scope

Pure Mathematics, Applied Math, AI and Machine Learning, Physics, Statistical Analysis, Mathematics Education, Econometrics.

Short Research Program (Summer & Winter)

A 6-month research program that includes training and paper writing in small cohorts. Typically culminates in a joint paper.

Long Research Program

A 12-month research program that is aimed at science fairs, journal publications. This program culminates in one-author or two-author papers.

Objective

Students in Grades 9 to 12 participate in research projects at Cheenta. These projects usually culminate in joint or single author papers that are submitted to universites during undergraduate applications. Advisors and students work rigrously on interesting problems. The output is aimed to demonstrate two things: depth of knowledge in an area typically beyond school curriculum and creativity.

Live Advising Sessions - 2 per week

One weekly mandatory Concept Class. The weekly session is followed up by homework problem set, programming and algorithm design challenges.

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Active Mentoring for Profile Building

Path to Ivy League

The active mentoring program at Cheenta is useful for students who wish to pursue higher education at universities such as Harvard, MIT, and similar premier seats of learning. This may include some or all of the following steps.

Inward Exploration

A 3-month process to understand a student's areas of interests and expertise.

Olympiad Training

A multi-year tailored process of math, physics and informatics olympiad training.

Research Projects

A multi-year research training and research projects that leads upto science fairs and publication.

Internship

Unique internship opportunities to tailor the experience portfolio of a student.

Entrepreneurship

Business development assistance for students who are interested to build products and services.

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Cheenta Academy
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Cheenta Team has 52 members

Outstanding researchers, olympians from the premier universities in India, US, Europe

Dr. Ashani Dasgupta

PhD in Mathematics from University of Wisconsin-Milwaukee.

Published research in London Mathematical Society's Journal of Topology.

Srijit Mukherjee

(Pursuing) PhD in Statistics from Pennsylvania State University.

B.Stat & M.Stat from Indian Statistical Institute.

Dr. Sourayan Banerjee

PhD in Mathematics from Indian Institute of Science, Education & Research.

Research Fellow at Indian Institute of Technology, Kanpur

J.V. Raghunath

B.Tech and M.Tech from Indian Institute of Technology, Madras

Olympiad coach and research associate at Cheenta