



Physics Olympiad Program Level 1 (Advanced)

Cheenta Academy for Olympiad & Research

cheenta.com

Since 2010

Passion for Mathematical Science & Research

This program is useful for introducing children to Physical Sciences and Astronomy using problem-solving and virtual labwork.

Success Stories Since 2010



Aryan Kalia

Top 1% globally in American Math Competition,

Attended Math Olympiad Program and School Research Program at cheenta

Attended Student internship program at cheenta

Harvard University in 2022



Sambuddha Majumdar

Scotland Math Olympiad Awardee

Attended Math Olympiad Program at cheenta

Attended Student internship program at cheenta

University of Edinburgh



Anushka Aggarwal

Youngest Indian National Math Olympiad awardee, European Girls Math Olympiad awardee

Attended Math Olympiad Program at cheenta

Attended Student internship program at cheenta

MIT (Massachusetts Institute of Technology) in 2022



Akshaj Kadaveru

American Math Competition, AIME and USAJMO awardee

Attended Math Olympiad Program at cheenta

MIT (Massachusetts Institute of Technology)

Curriculum 48 week program, 8 modules

Module 1



Electricitostatics

6 Lessons



Electric charge, conservation of charge, discreteness of charge Van de Graaff generator



Coulomb's law, electric field, electric field lines and their properties, superposition principle



Work done by an electric field, electric potential, equipotential lines and surfaces



Electric fields between charged parallel plates



Revision



Module Test

Module 2



Current Electricity

7 Lessons



Electric current, voltage, electromotive force, resistance, Fundamentals of electricity



Ohm's law, How are voltage, current, and resistance related



Series and parallel combinations of resistors, equivalent resistance, ammeter, voltmeter



Electric resistivity and Power Transmission
Combination circuits



Transformers and comparing
AC and DC power



Revision



Module Test

Module 3



Magnetism

6 Lessons



Magnetic field, magnetic field lines and their properties



Relation between Electricity and Magnetism



Magnetic Forces On Charge Particles



Earth's magnetic field, neutral point



Revision



Module Test

Module 4



Thermodynamics principles

7 Lessons



Temperature fundamentals



Thermal energy movement



How heat affects temperature : Units of heat, mechanical equivalent of heat



Thermal radiation → How is heat transferred through thermal radiation?



Global warming and climate change



Revision



Module Test

Module 5



Optics(Ray)

6 Lessons



Reflection of light: image formation in plane and curved mirror, virtual and real images



Refraction of light: refractive index,



Snell's Law, critical angle and total internal reflection, refraction through a glass prism



Mirrors and Lenses (Concave Convex)



White light and optical phenomena



Revision



Module Test

Module 6



Optics (Wave)

7 Lessons



Light behaving as a wave



8B Young's double slit experiment



Evidence for the wave-like nature of light



Fringe spacing



The wave-particle duality of light and matter



Revision



Module Test

Module 7



Particles in the nucleus

7 Lessons



Nuclear stability and the fundamental forces



Nuclear half-life



Types of nuclear radiation



Nuclear energy



Fission



Revision



Module test

Module 8



Wave Motion

7 Lessons



Measurement of length: Vernier calipers, micrometer



Scientific conventions {Errors, significsnt figures}



Collecting data



Representing and analysing data



Gradients



Revision



Module Test

Taught by Olympians and Researchers from leading universities

Since 2010 Cheenta has evolved into a Gurukul. Our students are in leading universities in India such as Indian Statistical Institute, Chennai Mathematical Institute, TIFR, IITs and universities abroad such as Harvard, MIT, Oxford, Edinburgh to name a few. Some of them returned as teachers for the next generation of learners. And the pursuit of excellence continues.



Cheenta Team has 40+ members. Here are some of the leaders.



Srijit Mukherjee
BStat and MStat from
Indian Statistical
Institute (India)
Director at Cheenta



Dr. Ashani Dasgupta
PhD from University of
Wisconsin-Milwaukee (USA)
Founder - Director at
Cheenta



Tanumoy Banerjee
Bachelor of Science (Hons) in Physics
from Delhi University
Faculty of Physics and Mathematics

Cheenta Academy for Olympiad & Research

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