

**EPSILON INDIA
2021
SUMMER CAMP**

REPORT

2021

EPSILON 2021

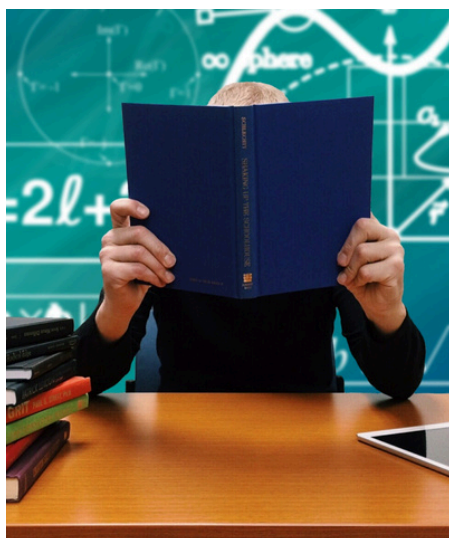
REPORT



SIGNIFICANCE OF EPSILON INDIA 2021

Epsilon India, is India's first summer camp for nurturing profoundly gifted students of ages 9 through 12. The camp was launched by Raising A Mathematician (RAM) Foundation in collaboration with Chennai Mathematical Institute (CMI) as its knowledge partner. The students were chosen through a rigorous selection process based on their performance in an Exploratory test and Algebra test. Epsilon India, follows the same instructional philosophy as Epsilon USA, which was founded by Dr. George Thomas, who is one of the pioneers of gifted Math education in the USA and founder of prestigious math camps such as MathPath, MathCamp etc. Dr. Thomas served as the Academic guide and also a Faculty for Epsilon India.

The purpose of the camp was to provide an early start and exposure to higher level Mathematics through a curriculum and pedagogy that serves outliers who are otherwise not challenged in school. The camp also provided an opportunity for the students to engage with other gifted children, thereby serving as a milieu for not only the academic growth but also the social and emotional growth of these unique and gifted children.



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STRUCTURE OF THE CAMP:



Faculty and Student Mentors

The students were taught by professional mathematicians and industry experts with a majority holding PhD in Mathematics or allied fields. The purpose of having professional Mathematicians as the faculty is that they are able to stretch any part of the curriculum to challenge all the campers. The students were also mentored by Teaching Assistants (Undergraduate students studying Mathematics from some of the top colleges in India) and Teachers' aides (Senior students of RAM Foundation who have completed substantial amount of course work in Mathematics and have a solid foundation in the course work being taught in the camp).



Daily Schedule and Format of the Classes

The day usually started at 7:30 am and went on till 8:15 pm with adequate breaks. Each group had 3 classroom sessions and office hours during which the students worked with each other and also with their student mentors. The office hours allowed for collaborative work between the students, thereby allowing them to further explore the topics that were handled in class. The student mentors guided the discussions and were trained to not provide answers but serve as facilitators. Having young mentors head the office hours allowed for even the most introverted camper to open up and work with their fellow classmates. The office hour time eventually led to a social breakthrough for many of the campers hence the camp became more than just an academic experience for the students.



Guest Lectures

The invited speakers for the guest lectures were usually people from the industry or academia. The purpose of the guest lectures was to introduce the campers to cutting-edge research and technology at a pace and depth that would serve to stretch their imagination and inspire them to embark on a self-study of these topics.

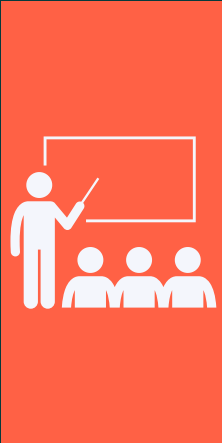
The guest lecture series started with a Study Skills workshop as most of the students struggled with good study habits such as taking notes, articulating their ideas in a written format etc. The technical sessions that followed touched on the areas of Mathematics and Computer Science such as Future of Computing, Colouring, Computer vision and Reinforcement learning, Top 3 Millennium problems in Mathematics, The simple Math that drives the AI Revolution, Conjectures and prime numbers, Partisan Function. There were also fun workshops such as KenKen puzzles and Cubing.

Parent Testimonials

We are extremely grateful to Epsilon India's entire team for organising this camp and allowing us to participate. Epsilon India has brought out Parth's inquisitiveness and made him realise his passion for math. His commitment to this subject was evident in seeing him prove theorems until late at night. When Parth told me that he didn't want the camp to end, I realised the amount of fun Parth had, couldn't be measured. Parth has been inspired by each child's determination and has shown him that there is a lot more to be done, to reach a great level. Parth and I have both learned a lot in the last 15 days, and we are extremely thankful for the same.

ALPA

STRUCTURE OF THE CAMP:



Classroom Sessions

The classroom sessions with the Professors were college lecture style and intense. The curriculum included topics such as Neutral Geometry, Algorithms, Advanced topics in Counting and Number Theory, Methods of Proof, Selected works of Euler, Game theory, Origins of risk in mathematics, Graph theory etc.. The students were asked to complete and submit homework solutions to gauge their understanding. Given that the nature of the homework was such that the student can approach a problem from different perspectives, the TA's graded the homework and provided individual feedback to the students on the methodology and approach that each student had used.



Parent Programs

The camp also included parent workshops that were curated for parents raising gifted children. The parent programs were designed to support parents in nurturing mathematical and social growth in their exceptionally gifted children. Workshops featured a range of speakers including Epsilon Camp faculty, giving a glimpse of camp curriculum. Other topics include educational planning options and strategies and parent topics related to the social/ emotional aspects of raising a gifted child.

Student Testimonials

Epsilon Camp was the best thing I have ever experienced in my life! It was like a tsunami of knowledge. Thanks to all. Hope to see all my Math buddies.

RAGHAV JEYAN PRABU

I must say I was blown away by the amazing sessions and content. The TA's and teachers were so patient and thoughtful, and they answered all our doubts. Thank you all so much for giving me the experience of a lifetime!

ANUSHKA TONAPI

Thank you so much for all that you have done for us. I am indeed indebted to you awesome people. I think that I have learned more math in these two weeks than all these years I have been attending school. I don't think I can say anything more.

SREENANDAN

CAMP OUTCOME

The deep and meaningful mathematical interactions between the students and the professors brought out the need for a space such as Epsilon in India for nurturing the scientists and thinkers of tomorrow. The students forged deep connections with like minded peers which is pivotal for their academic and emotional/social growth. The mathematical growth that was witnessed in just these two weeks, emphasised the fact that an early start in Mathematics is beneficial for the child who shows passion and ability and we need a more periodic gathering of such like-minded children, in a setting that stimulates and engages their intellectual and social needs. This is a necessity, if India needs to compete on the global stage with countries such as the USA, Russia etc., where such programs are more ubiquitous. The positive feedback from the parents on the parent workshops also highlighted the need for a supportive and informed community to nurture these unique children.

There is also a need to identify and nurture such children from underprivileged backgrounds. Given that there is a substantial cost involved in running a camp that is on par with any international program, there is a necessity for corporations to understand the long term benefit of funding such endeavours that will be essential to build India's next generation of creative and innovative thinkers.



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Parent Testimonials

We couldn't ask for anything better. It's been a transformative experience for kids, their boundaries have been stretched unknowingly in a subtle way and they've gotten a sneak peak into so many unknown areas, they have gotten to see how legends think and learn from them. The hours didn't seem long at all, he got so eased with the timings and the learning process seamlessly. Even during break hours he's been into the math world exploring what happened in the class. Appreciate the thoughtfulness by the RAM team to take care of even minute aspects. Lots of inspiration and insights that we gained through parent sessions as well. It's learning and fun and inspiration and exposure all in a capsule. Didn't seem like the first edition of a camp at all, it was so professional and seamlessly handled with zero glitches. Perfection personified! Couldn't have been better, except for wishing and hoping it to be an in person experience the next year.

GAYATRI

SUPPORTERS OF EPSILON 2021

Epsilon 2021 was generously supported by Individuals and organizations deeply invested in supporting gifted Math education.

We thank:



CHENNAI MATHEMATICAL INSTITUTE (CMI)

Our knowledge partners for their support



ART OF PROBLEM SOLVING (AOPS)

For supporting us with courses in Algebra A and Algebra B for the first batch of Epsilon students



QUOLAM BUSINESS SOLUTIONS

For building and maintaining our online student management software

Epsilon 2021 was immensely supported by an enthusiastic band of volunteers who were pivotal in ensuring the smooth operations of the camp.

Before the camp there were pre-reading materials that made it more interesting. Rajiv Sir's class in the morning of algorithms which I had not heard of before. Muralidharan Sir's class was filled with Euler's work which was pretty good. Thomas Sir's class was filled with 3 Geometry's : Neutral, Euclidean and Hyperbolic and a bit of Alcumus. It was all something new. Hari Sir's class was quite interesting. It had finance and risk taking which gave you an insight to another world of economics. The guest lectures were quite good as students and professors had come from IIT, Oxford and University of Illinois. The TA's were quite good; they helped us out with our doubts. The free time was occupied with completing notes. If the homework was done we played chess tournaments. This camp was the best. Hats off to the faculty!

PARTH MODI

FACULTY PROFILE

DR. THOMAS

Independent Researcher

Founder of Epsilon USA, MathPath, MathCamp

DR. S. MURALIDHARAN

Retd. Computer Scientist from TCS,

Chief Exam Coordinator for pre-RMO

MR. BHAS BHAMRE

Founder of Bhas Bhamre Academy in Nasik,

Resource person for various Olympiads

DR. RAJIV GANDHI

Rutgers University-Camden,

Founder of PACT (Program in Algorithmic and Combinatorial Thinking)

DR. HARI RAMASUBRAMANIAN

Head of Academic Affairs for RAM Foundation

Parent Testimonials

We are immensely thankful to Epsilon India, for organising this camp. Definitely, this will be a game changer for both students and Epsilon India. With a deep sense of appreciation, we thank the team's untiring efforts. An event like this cannot happen overnight. The wheels start rolling weeks ago with a bird's eye view. We are very fortunate to be part of this camp. I am short of words to appreciate the kids, when it comes to their involvement and their willingness to complete the tasks beyond their comfort zones. Also extended thanks to all the Epsilon team members for their enormous cooperation and contribution. We wish you success for all your future endeavors in igniting the minds of young mathematicians.

NAMRATA

TEACHING ASSISTANTS

SUNDARRAMAN MADHUSUDANAN

Final year B.Sc student in CMI

SHREEHARI BODAS

Fourth-year undergraduate pursuing an Integrated Masters degree in Mathematics from IIT Bombay

RUTAV SHAH

Third year undergraduate student at IIT Kharagpur majoring in Computer Science

PRANALI SOHONI

Final year student in BITS Goa majoring in Mathematics

TEACHERS' AIDES

The Teachers' Aides are senior students at RAM who have completed substantial course work in the course work covered and have attended rigorous Math camps such as Epsilon, RAM TP, Math Path, PACT.

MANU PARAMESHWARAN
SAEE PATIL
RUHI PUNGALIYA
HETVI PETHAD

Parent Testimonials

When my son Adithya just mentioned, "Amma, I did not realize how these 15 days had gone by. It was awesome" truly reflects that you have made all our kids swim through the ocean of bliss in Math. The diligent thought process has gone in for every minute aspect and kudos to the whole team. I can see all TA's dedication and teaching with exhilarating joy always!

SUBHA

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