Raising A Mathematician Foundation®

2025-26

RAM Maths Circle

Nagpur Chapter

Report







About Maths Circles

Maths Circles originated in Russia and have since expanded globally, attracting students eager to explore mathematics beyond the standard curriculum. These circles involve weekly sessions where mathematicians and educators engage students in solving non-routine mathematical problems.

The Raising A Mathematician (RAM)'s Nagpur Maths Circle aims to cultivate deep mathematical thinking and problem-solving skills among students through interactive and discussion-based sessions. The programme encourages students to move beyond rote learning and develop curiosity, creativity, and analytical thinking in mathematics.

The sessions were designed to be highly interactive, collaborative, and student-centred. Students were encouraged to work together in groups, discuss different approaches, and independently discover mathematical ideas through guided exploration.



Summary

RAM Maths Circle Nagpur Chapter witnessed an enthusiastic participation from students across different grades. Sessions focused on exploration, reasoning, and collaborative mathematical thinking.

Selection of students

Students were selected through a screening test conducted in offline mode. The selection process focused on identifying students with strong conceptual understanding, curiosity, and problem-solving ability.

Selection criteria

- Performance in the screening test
- Accuracy and problem-solving approach
- Conceptual understanding of mathematics
- Overall score obtained in the test
- The selection process aimed to identify students who showed enthusiasm and potential for engaging with higher-level mathematical thinking.

Classroom structure

The program was structure to provide personalised attention to each student. Sessions typically began with a mathematical problem, puzzle, or activity presented to the students. Students worked collaboratively in small groups of 3–4, encouraging discussion, peer learning and teamwork.

Teaching Assistants actively moved among the groups, guiding students and nudging them towards solutions without directly giving answers. Once students arrived at their own conclusions, detailed discussions followed where the underlying mathematical concepts were explained and reinforced.

This approach ensured:

- Active participation
- High student engagement
- Deeper conceptual understanding
- Development of collaborative problem-solving skills

The sessions were designed to feel more like mathematical explorations and games rather than traditional classroom teaching, helping students develop confidence and curiosity about mathematics.

Role of Facilitators and Teaching Assistants

Facilitators

The primary role of facilitators was to facilitate discussions, encourage independent thinking and address students' doubts while fostering curiosity about mathematics. The teaching approach was friendly and informal, ensuring that students felt comfortable sharing their ideas and approaches openly. Facilitators guided students towards discovering concepts on their own rather than directly providing solutions.

Sessions focused heavily on discussion-based learning and exploratory thinking, helping students engage deeply with mathematical concepts.

Teaching Assistants (TAs)

Teaching Assistants came from diverse academic backgrounds, including Engineering and Chartered Accountancy.
Their primary responsibilities included:

- Facilitating discussions within small groups
- Helping students clarify doubts
- Providing hints and guidance when required
- Encouraging participation from all students

The TAs played an important role in maintaining an interactive and supportive learning environment.

Topics Covered

The programme covered a diverse range of mathematical topics aimed at strengthening analytical thinking and problem-solving abilities.

Topics explored during the sessions included:
1. Basics of Game Theory through Nim Games – winning strategies and backward induction
2. Problems based on Mathematical Induction
3. Fundamentals of Combinatorics
4. Introduction to Number Theory – factorisation, HCF, and LCM
5. Permutations and Combinations
6. Probability
7. Graph Theory
8. Linear Algebra and Algebra
9. Discrete Mathematics
10. Data Analysis and Extrapolation (Statistics)

11. Fibonacci Series, Lucas Series, and their interrelationship, including generalised forms
12. Symmetry in Squares – exploring rotations and reflections using hands-on activities
13. Advanced problem-solving across multiple mathematical topics
14. Algebraic Inequalities

These topics helped students build stronger logical reasoning, creativity, and confidence in approaching unfamiliar mathematical problems.

Session synopsis documents were maintained regularly to record mathematical activities, discussions, and topics explored during each session. The session reports are uploaded here: https://www.mathscircle.org/nagpur-sessions.

Assignments

Weekly assignments were given to reinforce concepts covered during the sessions and assess students' understanding.

Assignments encouraged students to:

- Revisit concepts discussed during sessions
- Develop independent problem-solving skills
- Explore multiple approaches to a problem
- Strengthen mathematical reasoning abilities

Students were expected to submit their solutions in the next session, after which discussions and feedback were provided.

Appreciation and Recognition

The programme recognised and appreciated students who actively participated and demonstrated strong problem-solving skills

Recognition methods included:

- Inviting students to solve problems on the board and explain their approaches
- Conducting quiz sessions, mathematical games, and puzzle activities
- Rewarding students with small mathematics books, mathematics-related accessories, etc.
- Appreciating collaborative thinking and active participation during discussions

These appreciation methods motivated students and created an enjoyable mathematical learning environment.

Guest Speakers & Faculty



ATUL DEO

GUEST SPEAKER & FACULTY

Vice Principal at Bhavan's Bhagwandas Purohit Vidya Mandir, Ashti, Nagpur. He has been working in the field of Mathematics since last 21 years. He has been taking the initiative to nurture young minds in innovation and research in the field of Mathematics.



VINAY NAIR

GUEST SPEAKER

Mr. Vinay Nair co-founded Raising A Mathematician Foundation. He is also the founder of Vichar Vatika, and the director of Epsilon India.



BHAS BHAMRE

GUEST SPEAKER

Bhas Bhamre is a geometer, national-level Olympiad faculty, and founder of Bhas Bhamre Academy (Nashik). He has participated in PROMYS Boston. He holds leadership roles in Maharashtra Ganit Adhyapak Mandal.

Facilitators

RAM Maths Circle Nagpur is a student-led initiative that nurtures mathematical curiosity and problem-solving skills among young learners. This math circle is led by alumni of RAM and their parents.



MOKSHIT KOTHARI

CA Mokshit (a RAM alumnus) is currently working as an analyst at Mosaic Asset Management. He secured AIR 26 in the CA 2026 Final examinations. He is also an aspiring actuary.



NILAM BHOJWANI

Nilam is a B.Tech AI/ML student and RAM alumna. She is passionate about blending math with coding.



ARYA LAMGE

Arya is a B.Tech. graduate in Aerospace Engineering from the University of Manchester and is currently working in Operations Research.



AYUSH GUPTA

Ayush is a B.Tech graduate in Computer Science and is currently working at Motive.



MANAV VANJANI

Manav is an aspiring Chartered Accountant and cleared his CA intermediate examinations.

Teaching Assistants



RIDDHI THAKKAR

Riddhi is an aspiring Chartered Accountant



ARJUN CHATE

Arjun is currently an aspiring Chartered Accountant and cleared his CA intermediate examinations. He is also the founder of DinkarReads.



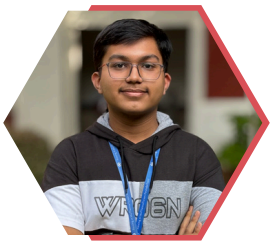
YASH GADEKAR

Yash is an aspiring Chartered Accountant and has interest in finance and mathematics.



RUTVA PALAN

Rutva is a B. A. (Hons.) Economics student at Shri Ram College of Commerce, University of Delhi.



VINEET GULHANE

Vineet is a school graduate and aspiring to pursue an undergraduate degree in engineering sciences.



KHYATI CHAMBHARE

Khyati is a grade 12 student, preparing for JEE.

Supporters

- VPA Commerce Classes have been really kind to provide the venue absolutely free of cost.
- RAM Maths Circle Nagpur is managed by the parent community of RAM alumni, and we extend our thanks for their ongoing support. We welcome anyone who wishes to support RAM Maths Circle, whether through donations or other means.



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