

## RHEA GUPTA

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### EDUCATION

<b>The Shri Ram School, Aravali (TSRS), Gurgaon, India</b>	2010 - Present
• <i>ISC (Indian School Certificate) – Grade XII (to appear Mar 2024; Predicteds 97%)</i>	2022 - Present
• <i>ICSE (Indian Certificate of Secondary Education) – Grade X (97% Mar 2022)</i>	2020 - 2022

### ACADEMIC AWARDS AND HONOURS

#### **The Shri Ram School, Aravali (TSRS) Subject Merit Awards**

• Class IX: Maths, History, Geography, Physics, Chemistry, Biology, Computer Science, Spanish	2020 - 2021
• Class X: No merit awards due to Covid (would have received in English, Maths, Sciences, Social Sciences, Computer Science)	2022
• Class XI: Maths, Computer Science (100% in Maths in Term 1)	2023
• Class XII: Term 1 (Computer Science, Chemistry)	2023
• Predicteds: 97% (CS: 100%; Maths and Chem: 98%; Eng: 95%; Phy: 93%)	2024

#### **International Awards**

• British Science Association CREST Gold Awards (3)	
- Research paper on correlating Collatz to estimation of size of hailstones	2023
- Research paper on qualitative assessment of factors impacting MHD flow	2023
- Research paper on K-Means to solve for fair clustering	2023
• Centre for Education in Maths and Computers (CEMC), University of Waterloo (4)	
- Certificate winner and Distinction in Fryer, Pascal, Hypatia, Euclid Maths Competition	2021, 2023
• Elaine Hobson Literary Award:	2023
- 2 <sup>nd</sup> place in Senior Group at “2023 Elaine Hobson Literary Festival” (theme: “Empathy”)	
- Published in 2023 August edition of VSA’s “Anthology of Short Stories and Essays”	
- Shortlisted for Reader’s Choice Award	
• International Olympiads (8)	
- Hong Kong International Science Olympiad (HKISO): Gold in regional and global (rank 14 <sup>th</sup> )	2023
- Future Intelligence Science Olympiad (FISO): 4 silvers in Maths, Physics, Chemistry, English	2023
- AIMO (Asia Int’l Math): Silver	2023
- WMI (World Math Invitational): Bronze	2023
- Copernicus Olympiad Maths: Bronze	2023
• Immerse Essay Competition: 30% Scholarship Award among 10,000 participants for Engineering	2023
• <i>Global Youth Award – nominated for SheSTEM and Water</i>	2023
• <i>Unstoppable Award – nominated for SheSTEM, Water and K-Means</i>	2023

### “CLEAN SUSTAINABLE WATER FOR ALL” INITIATIVE AND RESEARCH

• <b>Research</b> ( <i>Ecolab</i> ): Interned to understand the different methods of purifying water, their pros and cons and impact on sustainability; deep dived into RO (reverse osmosis) as a method for purifying water for household consumption	2022 - 2023
• <b>Outreach</b> ( <i>Safe Water Network - SWN</i> ): Interned to apply the concepts of sustainable water treatment to the iJal Programme; helped implementation of water ATMs in villages in Haryana; made recommendations for improvements	2023
• <b>Leadership</b> ( <i>Young Sustainable Development Goals Leadership – YSDGL</i> ): Summer programme to present the impact of sustainable water treatment and use of water ATMs and an aspirational plan to scale up by 10x	2023
• <b>Public Policy</b> ( <i>United Nations Global Compact Network India – UNGCNI</i> ): One of 12 students selected for UNGCNI; drafted a public policy paper; presented recommendation to authorities	2023 – Present

### SCIENCE, TECHNOLOGY AND MATHS EXPERIENCES

#### **Research Oriented**

• <b>Columbia University</b> : Worked with Morena Porizio (Ph. D student in Maths) to write paper on “Collatz Conjecture; Application to Estimating Size of Hailstones”; published paper in Journal of Student Research (JSR)	2022 – 2023
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- **Columbia University:** Working on research paper on applying game theory to estimating impact of pollutants on cities, depending on their street layout and structure (street canyons) and optimizing for vehicles, trees and people 2023 – Present
- **IIT Delhi:** Research paper with Prof Amit Kumar (Professor of Mathematics and Computer Science) on k-means algorithm and application to promote fairness through clustering e.g. optimizing hospital locations in a city; peer review at National High School Journal of Science (NHSJS) 2023 - Present

### **Experiment and Lab Oriented**

- **Aditya Birla Science & Technology Center:** Laboratory experiment to demonstrate the use of a Magnetohydrodynamic (MHD) pump and its application in pushing physical matter forward; peer review at National High School Journal of Science (NHSJS) 2023 - Present
- **National Physical Laboratory (NPL):** Working on an experiment to prepare graphene oxide – one of the most cutting-edge materials for use in semi-conductors and various other applications 2023 - Present

### **Summer Programmes and Courses**

- **Browns Leadership Course (Scholarship):** Math of Rubiks Cubes and Related Puzzles 2021
- **Big Bang Physics:** Designed by Life Lab Foundation for Elementary Particle Physics Learners 2021
- **Supros:** Computer Science Engineer Program Internship 2021
- **Johns Hopkins** summer programme: “An Analysis of Sherlock Holmes” 2020
- **Swiss Innovation Camp:** Attended sessions on Particle Detector Robotics and Coding Neurotechnology (CERN, STEM, University of Geneva) 2019

### **“GIRL STEM EMPOWERMENT INITIATIVE”**

- **Empathy:** Researched high drop off rate of women in STEM and its adverse impact on society 2022
- **Leadership:** 2022 - 2023
  - Launched the SheSTEM initiative
  - Led panel discussions and webinars of distinguished women from STEM (attended by over 300 students)
  - Ran sessions on STEM topics with experts (research papers, subject selection)
  - Hosted high school children at Nehru Planetarium, National Science Centre
  - Created an online forum (web and social) for crowdsourcing of ideas
- **Impact:** Formed a body of 11 successful women as mentors, 19 student ambassadors across 13 schools and over 100 volunteers across 17 cities. Covered by Business World – a leading Indian magazine

### **SPORTS PURSUITS**

- **Olympics Gold Quest (OGQ):**
  - Helped identify a potential sixth sport (swimming/ rowing) for OGQ to invest in 2021
  - Researched a report on swimming and rowing across multiple parameters and what it may take for India to achieve success at the Olympics 2023
- **Swimming:**
  - CISCE National Sports and Games: Gold (50m freestyle), Silver (100m freestyle, 50m breaststroke) 2022
  - Sub Junior/ Junior/ Senior Gurgaon Districts: Under 17 Bronze (50m breaststroke, 400m freestyle) 2019

### **EXTRACURRICULAR ACTIVITIES AND OUTREACH**

- **MUN:** Head of Airforce (Cabinet of Colombia) to capture Pablo Escobar; High Commendation Award 2020
- **KRUU:** Research document on vaccine efficacy, importance and relevance 2023
- **Bridge It:** Taught EWS (economically weaker section) children to speak, read and write in English 2022-23
- **IamGurgaon:** Volunteered at ‘IamGurgaon’ to foster adoption of yellow-colored bags for disposal of biomedical waste thereby curtailing the spread of the virus from asymptomatic carriers 2020-21
- **INME (I Believe In Me):** Naukuchiatal Discover Programme. Participant – kayaking, backpacking, rope course 2019

### **SKILLS AND INTERESTS**

- **Languages:** English, Hindi, Spanish; **Computer languages:** Java, Python
- Any water activity (swimming, scuba diving, snorkeling, kayaking, rafting), reading autobiographies