

KRISHAY SUTODIA

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Silver Spring, Kolkata, West Bengal, India – 700105

EDUCATION

The Doon School, Dehradun

International Baccalaureate Diploma Program (Predicted grade: 44/45)
International General Certificate of Secondary Education (Grades 9 - 10) - 9/9 A*s

Graduation: May, 2024

ACADEMIC AWARDS

- Headmaster's Cup in Physics, Additional Mathematics, Chemistry, English, Spanish Ab Initio & Maths A & A - For highest marks in respective subjects. (2018 – 2023)
- Academic Excellence Scholarship (\$7300 - 50% of school fees) for exemplary performance in the IB cohort. (2022 – 2023)
- Academic Excellence Scholarship (\$7500 - 50% of school fees) for exemplary performance in the IGCSE cohort. (2021 – 2022)
- K.C Mahindra Search for Talent Scholarship Award for highest aggregate marks in grade 10 board examinations. (2022)
- Scholar's Blazer – Highest Academic & Co-Curricular Award in School. (2023)

RESEARCH

PHYSICS

Alpha Science Competition (International Physics Tournament - Winner of overall research stage amongst 12 teams) (2023)

- RQ: How accurately can you determine the number of matchsticks in a matchbox from the sound it makes when you shake it? Can the same method be applied to a box containing chewing gums?
- Investigated how the orientation of the matchbox in three different planes & the number of matchsticks inside the box affect the amplitude of sound using spectrums in Audacity software. Realised through investigation the critical role of volume of the empty space in the matchbox in the sound produced.

CERN Beamline (Group Research) (2022)

- RQ: What does the beam halo, produced by the collision of a proton beam & test sample, show about a sample's internal structure?
- Outlined the experiment design, from bending the proton beam to utilising a halo counter for size, shape, & spread analysis.
- Investigated how specific properties of the beam allow us to determine the density & composition of 7 mineral samples & their atomic & molecular arrangement.

Independent Research (2023)

- RQ: How does the vertical terminal velocity of the washer falling down a vertical rod while spinning around it depend on its ring ratio?"
- Varied the ring ratio (ratio of the outer radius of the ring/inner radius of the ring) & analysed the magnitude of terminal velocity & the time taken to reach it while spinning around the steel rod.
- Considered different rotation frequencies & different types of contacts that the ring can make with the steel rod (double point & single point) to study the relationship between the spin frequency, acceleration of spring, & terminal velocity.

MATHEMATICS

Independent research (2023)

- Used Markov Chains to predict the outcome of the election of the school council secretary.
- Based on 4 opinion polls, created a short-term model for vote prediction using transition matrices & conditional probability. Utilised diagonalised transition matrix, eigenvectors & eigenvalues, & Gaussian elimination for the long-term model. Compared the calculated & actual vote outcome to evaluate the accuracy of both the models.

CHEMISTRY & ENVIRONMENTALISM

Conrad Innovators Challenge & Earth Prize (2022)

- Pitched the idea of a novel catalytic converter to combat air pollution caused by car. Created a CAD model in Blender outlining the technology, components & materials that will be utilised to filter harmful particles & gases.
- Presented financial & economic implications to justify practicality including eliminating existing competition, optimising cost, etc.

Global Young Entrepreneurs Conference (2021)

- Pitched the idea of a 'Solar Reflective Multi Modal System (SRMMS)', which harnesses the energy of the sun to create an efficient energy source for homes. CAD models & hand-made illustrations were used to explain the technology & its components.
- Developed a business model canvas to show how the problem of skyrocketing fossil fuel & electricity prices can be addressed.

OTHER ACADEMIC PURSUITS

OLYMPIADS

- Avogadro's Chemistry Exam by University of Waterloo: Certificate of Distinction (98th Percentile); ranked 1st in province, 4th in country & 142/ 4741 in the world. (2023)
- World Economics Cup: High Distinction; national Bronze medallist. (2023)
- International Chemistry Quiz by the Royal Australian Chemical Institute: High Distinction. (2022)
- International Informatics Olympiad (IIO): Ranked 2nd in class, 3rd in state, & 138th overall. (2020)

PROBLEM SOLVING (MATH) (2019 – 2021)

- Developed problem sets on behalf of the NEST Society, an initiative to encourage students to take interest in complex math problem-solving. Over 35 problem sets were created in a span of 5 months.
- Rewarded innovative thinking with points like in a game to increase interest & motivate others to join. Prepared thorough answer schemes to enable students to correct & learn from their mistakes regularly.

RESEARCH DRIVE (2021 – 2023)

- Interviewed over 15 university students & senior researchers in STEM to thoroughly understand the process of conducting research.
- Headed a team of 6 students to collate their views in the form of a research drive, 'The Scientific Method'. This included brainstorming topics, experimental processes, data analysis, error evaluations & knowledge of other resources to enhance skills in research.
- Mentored juniors to conduct comprehensive research & write papers with reference to this guide. Curated certain papers in 'The Doon School Scientific Journal'.

LEADERSHIP EXPERIENCE

JOURNALISM & STUDENT GOVERNMENT / POLITICS

- Senior Editor (Econocrat): Economics & Current Affairs, The Infinity: Mathematics, Echo: Science, Where Eagles Dare:

- Resident House Publication. (2018 – 2024)
- Elected Secretary of The School Council: Highest student-teacher body in school. (2023 – 2024)
- Elected student representative of The Pastoral Council & The Student Study Council. (2020 – 2021)

TEACHER ASSISTANT – PHYSICS & MATHEMATICS

(2022 – 2023)

- Helped 25+ students to improve their understanding & performance in these subjects through exciting problem-solving sessions, experimental demonstrations, & guidance through online courses revolving around challenging topics.
- Assisted teachers in making study plans, conducting sessions in classrooms, preparing worksheets/mocks with problems & collecting doubts from students. Over 15 students improved their grades from C/B to A/A*.

INTERNSHIP – TUBE INVESTMENT OF INDIA PVT LIMITED

(2022)

- Introduced to a wide range of CRCA Steel Strips that find application in Fine Blanking, Bearing & Automobiles. Explored the different divisions of mobility, raw material assimilation, etc, to gain an insight into the technology behind the creation of these tubes.
- Collaborated with 80 employees to promote the use of recycled steel & aluminium alloys for the sustainable production of thick steering shafts & hydraulic cylinder tubes. This helped in improving the efficiency of systems while prioritising environmental needs.

COMMUNITY SERVICE

HEALTHTEA

(2018 - 2023)

- Founded an initiative that focuses on uplifting the health & lifestyle of the workers at more than 10 tea plantations through three verticals: eye camps (in collaboration with VisionSpring Foundation, NGO, NY, USA), alcohol deaddiction & first aid camps.
- Held discussions with over 350 labourers to understand the root of the problem & collaborated with 8 labour union heads to devise solutions to these obstacles.
- Testimonial revealed that informative sessions & resources enabled more than 700 labourers to respond quickly to injuries & addictions & helped increase their productivity. This also reduced the pressure on local healthcare systems.
- More information can be found here: <https://drive.google.com/file/d/1xwPqhVPK5Ia4JSXdqkmW-fo1NQ1D9Uc5/view>

REUSE NETWORK

(2021 - 2023)

- An initiative that focuses on linking sustainability & re-skilling prisoners in the Suddhowala jail in Dehradun. Guided more than 60 prisoners to make products like lamps, paper bowls, & bookshelves out of waste items from our school & their jail.
- Sold these items in Founder's Day Exhibitions of 3 schools in Dehradun. Collected over \$1000 & donated it to the prisoners' families to support them financially.

ACTIVITIES & INTERESTS

SPORTS

- Captain of the School Squash Team. (2023 – 2024)
- Squash Full Colours – Highest Award for a sport in school. (2022)
- Uttaranchal State Closed Squash Championship in the U-17, U-19 & Men's' category: Winner. (2023)
- All India IPSC Squash Championships in the U-19 category: Bronze Medallist. (2023)
- Uttaranchal State Closed Squash Championship in the U-17 category: Winner. (2022)
- Triangular Squash Tournament & Assam Squash Districts (selected amongst a team of 8 players for the Assam Olympics): Runner – up. (2022)
- Represented school in Squash IPSC & was selected out of 5 students for the School Games Federation of India (SGFI) Nationals. (2019, 2023)
- Part of the House Team in Cricket, Football, Hockey, Athletics & Squash. (2018 – 2023)

PUBLIC SPEAKING

- 'Smarika' Inter-School Quiz Competition hosted by the Welham Girls' School: 1st Runner Up amongst 13 teams. (2023)
- 2-Time Best Speaker & 3-Time Most Promising Speaker in Inter-House English Debates across 5 years. (2018 – 2023)
- Trinity Speech & Drama: Grade 1 to 6: Distinction. (2018 – 2023)
- DSMUN Executive Board - Deputy Chairperson: Human Rights Council. (2022)
- Gombhar English Speech Competition: 2nd Runner-Up. (2021)
- Vikram Seth Poetry Competition (The school's premiere English recitation competition): 1st Runner-Up. (2020)
- Inter-House Hindi Declamation Competition: Winner. (2019)
- Secretary of the Junior English Debating Society. (2019 – 2020)
- Organised & chaired the Junior English Debating Invitational Competition (JEDI) & The Inter-School Senior Chuckerbutty Debates. (2020 – 2022)
- Senior member of the Senior English Debating Society & Quiz Society. (2018 – 2023)

WRITING COMPETITIONS

- Shanti Swaroop Inter House Science Writing Competition: Winner for the best research paper amongst 20 participants. (2021)
- B.J. Pitre Science Fiction Writing Competition: 2-time winner for the best science fiction story amongst more than 60 participants. (2019, 2022)
- John Locke Competition: What might account for the different levels of political corruption in your own country & your country's nearest neighbour?: Explored the historical roots, causes, & societal impact of political corruption in India & Pakistan. Examined the situation in status quo & what can be done to improve it. (2022)

MOUNTAINEERING

- Scaled Kedarkantha (12,500 ft), Nag Tibba (9915 ft), Dayara Bugyal (11,940 ft) & Landsdowne (4593 ft) in 8-day trekking expeditions. (2018 – 2023)