

MIHIKA KELA

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EDUCATION

Aditya Birla World Academy (ABWA) , Mumbai, India	2021-Present
<i>International Baccalaureate Diploma Programme, Grade 12</i>	2025-Present
<i>Cambridge IGCSE Board Examinations, Grade 10</i>	2023-2025
Stanford University Online High School	2026
<i>Multivariable Calculus and Linear Algebra; secured an A grade</i>	
University of Pennsylvania	2026
<i>Management & Technology Summer Institute; secured an A- grade</i>	

STANDARDISED TESTS

- **SAT:** 1540 2026
- **IELTS:** yet to give

ACADEMIC HONORS AND AWARDS

School

- Grade 11: highest in Mathematics AA HL, Hindi B SL and Economics SL; General Proficiency; Academic excellence in 5 subjects 2026
- Grade 10: highest in Mathematics, World Literature and Hindi; General Proficiency; Academic excellence in 10 subjects 2025
- MISA award for high school toppers for IGCSE Grade 10 results 2025
- Grade 9: highest in History, World Literature and Hindi; General Proficiency; Academic Excellence in 7 subjects 2024

National and International

- Selected as an IRIS Finalist; Won the Dr. Sultan Ahmed Ismail Special Award for Environmental Engineering 2025
- Selected for RSI India (Indian subsidiary of regeneron) 2026
- Distinction in AMC 12 A; AIME qualifier 2025
- Distinction in AMC 10A and 10B; AIME qualifier 2024
- World Mathematics Team Championship; Bronze medal in Individual Rounds; Top 30% Advanced Level Team 2025
- Distinction in CEMC Avogadro Exam Contest; highest score in my school 2026
- CEMC Cayley Group V Honour Roll 2025
- Infinity Math Competition - Silver Medal in the Individual Category, Winner in a Team Competition, one of top 5 teams overall 2026

CLEAN WATER OUTREACH INITIATIVE

Project Jeevan Dhara 2025-2026

- Raised INR 60 lacs (\$62,000) to dispense 10 RO based water dispensing ATMs in Villages in Jalgaon in collaboration with the Gandhi Research Foundation
- Worked on testing the water quality in all chosen locations, and customising the ATMs based on the tested water
- Made training manuals for workers in the village for the upkeep of the ATM
- Conducted willingness to pay surveys, including 100+ people in the villages to set the price of water

Flushlite 2025

- Conducted a grassroots campaign in over 50 households to install 1 litre bottles in external flush tanks to save water

ENGINEERING EXPERIENCES AND RESEARCH

Research

Low-Energy Pretreatment System for Seawater Desalination	2025-2026
• Designed and built a three-stage water filtration system that purifies seawater using activated carbon, silica sand and a nanoparticle layer	

- Engineered a self-cleaning filter mechanism using vibration motors and a network of 20+ sensors continuously monitoring turbidity, flow, pH, and salinity, with real-time automated system adjustment.
- Refined the system across 23+ experimental trials, achieving ~80% reduction in turbidity and ~40% reduction in hardness while cutting energy use to a fraction of industry-standard systems.
- IRIS Finalist for this project
- Presented the project to BMC engineers in Bombay and engineers at VA Tech to get feedback and improve

Custom-Enzyme Design for Sustainable Desalination Using Aquaporins 2025-2026

- Modelled targeted mutations of Aquaporin Z (AqpZ) from E. coli using AlphaFold structure prediction and AutoDock Vina molecular docking to improve water flux and salt rejection.
- Manuscript in preparation for peer-reviewed publication.

Colourimetric Water-Quality Monitoring System 2025

- Co-authored a paper on a low-cost colourimetric monitoring system for detecting water contaminants
- Created an ML system that uses RGB data from a colour sensor and predicts the water quality, and offers suggestions to purify the water

Independent Research

IB extended essay in Chemistry: Investigating the ability of Iron Nanoparticles produced through industrial methods and green methods to remove heavy metal ions from water 2025-2026

Engineering projects

FORMR: Real-time form coaching system, Penn M&TSI 2026

- Co-developed a system that tracks form while exercising and offers feedback using MediaPipe's blazepose; used a Random Forest classifier with 93% accuracy on Zenodo data

Internships

VA Tech Wabag 2025

- Researched PFAS chemicals and the adoption of PFAS removal technology in India
- Learnt about water treatment processes, including wastewater treatment and desalination, and visited two plants
- Analysed 5+ companies through the blue seed initiative, identifying upcoming technology in the water sector and evaluating the financial models of these companies

ENAM Holdings 2024

- Researched EV adoption and Energy Storage Solutions in India, and evaluated engineering companies that do the same

Jain Irrigation Systems 2025

- Learnt about drip irrigation and biochar production
- Visited the ATM in Kurangi that became the basis for Project Jeevan Dhara

Observations and Learnings 2026

- UPenn: visited professor Samantha McBride's Mech. Eng lab and learnt about the water treatment research being conducted there - including microplastic and PFAS chemicals removal through foam fractionation

SCHOOL LEADERSHIP

- School captain: organised and hosted key events such as the graduation ceremony, awards day and prom 2024-2025
- Head of Financial Literacy Club 2025-2026
- Head of Photography at ABMUN 2025
- Head of Logistics at the Christmas Market 2025
- Core member at Happy Place (Mental Health Fest at ABWA) 2026

COMMUNITY OUTREACH

Asha Kiran - home for underprivileged children

- Founder of Tutoring Program teaching Non-Formal Education students Math and English; recruited 5 students in my school for this and got 8 NFE children enrolled in schools in our first year 2025-2026
- Organised monthly workshops for the children spanning topics like menstrual health, art and STEM activities 2024-2025

SUMMER PROGRAMS AND ONLINE COURSES

- Brown Summer School - Introduction to Game Theory and Behavioural Economics 2024
- Charterhouse Summer School - Entrepreneurship and Photography 2023

INTERESTS AND SKILLS

- Kathak dancer - performed on stage multiple times, exams up till level 4 2016-2026
- Photography 2023-Present