

# NICHOLAS HAGEDORN

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## Education

### Princeton High School • 11<sup>th</sup> Grade Fall 2022

4.0 Unweighted GPA; 4.38 Weighted GPA. 1580 SAT. 9 AP classes. Scored a 5 on all AP tests taken.

### Ross Mathematics Program • Summer 2021 & 2022

Self-explored number theory, Ergodic Ramsey theory, & set theory. Program ranked top 3 in the nation. Attended as a student in 2021 and as a junior counselor in 2022. Only 5/100 accepted back as a junior counselor. Graded participant sets, lead problem review sessions, & lectured to 30+ students.

### New Jersey Governor's STEM Scholars Program • Fall 2022

Selected as one of the top 100 STEM students in NJ. Currently completing a year-long research project.

## Activities

### Knot Theory Research • 2021 – Present

"Strict Inequalities for the  $n$ -crossing Number," Lead Author. Found and proved the 5<sup>th</sup> of the five known strict inequalities between knot  $n$ -crossing numbers. Pre-print available in Cornell's arXiv. Research advised by Prof. Colin Adams of Williams College.

- One of a dozen high schoolers in the world accepted to give contributed talk at the Joint Mathematics Meetings (Boston, Jan. 2023), the largest mathematics conference in the world.
- Only high schooler in New Jersey accepted to give talk at the Mathematical Association of America's New Jersey section meeting (Cape May, NJ, Oct. 2022).

### Absolute Value • 2021 – Present

Vice President of Absolute Value, an international 501(c)(3) non-profit dedicated to engaging middle schoolers in math through hosting friendly math competitions.

- Located in 3 continents, 5 countries, and 12 US states for over 25 total chapters.
- Recognized by the Art of Problem Solving as one of the 25 largest American middle school math competitions.

### Speech & Debate • 2020 – Present

Officer. Competed on the national circuit on Princeton High School's Varsity Public Forum debate team.

- 3<sup>rd</sup> place at New Jersey's 2022 State Championships.

### Programming • 2020 – Present

Co-founder of PHS Competitive Programming Team. Four years' experience creating Python projects.

- 1<sup>st</sup> place at Princeton High School's hackPHS 2021 hackathon with 300+ competitors.
- 2<sup>nd</sup> place at Lockheed Martin's New Jersey & New York 2022 "Code Quest" with 200+ competitors.

### $\pi$ & AI • 2021 – Present

Co-founder of organization. Run math and programming circles at local middle school and library.

- Earned \$600 funding from America's Promise Alliance.

### Ideas Center • 2021 – Present

Leader on the Board and volunteer tutor at Princeton High School tutoring center; March 2022 "Tutor of the Month."