

David Lee

Lynbrook High School
Sophomore

Hobbies

Physics, Math, Computer Science, Piano, Violin, Chess, gardening

Clubs

Science Club, Math Club, Computer Science Club, Astrophysics Club, Science Bowl, Students For Literacy

Contest/Competition Experience or Honors

US IPHO team alternate (2021), USAPhO qualifier (2020-2022), USAJMO Honorable Mention (2021), AIME qualifier (2019-2022), USACO Platinum, National Astronomy Competition qualifier (2022), USNCO National Exam nominee (2022), USABO semifinalist (2021), National Science Bowl 1st place regional (2022). First Place in multiple international piano competitions.

Autobiography

As a young child, I was drawn to math and science. I liked how there was a definite answer for each problem that you could objectively prove. Since elementary school, I started doing math competitions, such as AMC8 and Mathleague.org. I continued through middle school, doing the AMC10 and qualifying for AIME since 7th grade.

I was introduced to physics through classes in middle school. This started with my sixth grade physics class. While some found the class challenging, I was able to quickly master the formulas and use my math experience to breeze through the questions. I was able to master some basic types of problems in kinematics. I found it interesting how I could use math and physics equations to describe the motion of daily-life objects around me.

In seventh grade, my school had a second year of physics. Around this time, I also started self-studying calculus, which changed my entire view on the subject of physics. While previously I was just memorizing the formulas the teacher told me to memorize, with calculus, I started to understand where all of those formulas came from. I read about how Newton created derivatives and integrals in order to deal with instantaneous velocities. I also started to see physics not as a place where you could plug in formulas and use math, but instead as a motivator for the creation of some kinds of new math.

In 2019, I also decided to take the $F=ma$ competition. Going into the competition, I thought I knew most of the kinematics formulas and that I could work everything out with my experience in math, but after the test, I realized there was much to mechanics that I had not learned yet. This motivated me to study mechanics in depth. I studied more, by taking classes outside of school and reading David Morin's Problems and Solutions in Introductory Mechanics. In 2020, I qualified for the USAPhO, but that year it was canceled due to COVID.

In 2021, I qualified for USAPhO again. Although my physics knowledge was still mostly limited to mechanics and basic E&M, luckily that year's USAPhO contest had many mechanics problems. I was

invited to take the USAPhO plus. Since then, I started studying other topics as well, such as advanced E&M, thermodynamics, relativity, optics, and modern physics. This motivated me further and helped me understand a much larger portion of the physics behind how the world works.

I am extremely honored to be invited again as part of the US Physics Team, and I hope to get better at solving physics problems and learn more and expand my knowledge of physics. I hope one day I will solve some unsolved problems in physics, have new discoveries, and bring innovations to society using my physics knowledge.

I would like to thank my middle school physics teachers Mr. Adams and Mr. Rocha, who first introduced me to physics, and Dr. Chunlai Yang for teaching me and guiding me through all of the knowledge required for the olympiad physics competitions. I would also like to thank my parents who spotted my interest in physics at an early stage and supported me with resources. Finally, I would like to thank Lynbrook High School for providing a community of awesome teachers and students who have helped strengthen my interest in science.