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July 24, 2023

Dear Parents of Daniel Tatar,

We were very pleased to have Daniel with us for MathPath 2023 at University of Portland in Oregon. It was wonderful both to return to the city of Portland for the third time in MathPath history and to explore a new campus. The academic facilities were excellent for effective classes and lectures, and we enjoyed many clear and warm summer days and cool nights. Music and laughter filled our residence halls during free times. Students enjoyed getting to socialize with one another and with faculty and staff in the dining hall during meals. We had a lot of fun getting to play together outside and go on a variety of field trips. Daniel and his fellow students truly helped create a happy and productive environment for this summer's MathPath.

The academic program included three daily plenaries – one on the history of mathematics, one given by a guest lecturer, and one on mathematical writing. During the guest plenaries, Daniel had the privilege of hearing talks from many notable professors from Oregon, as well as full weeks of plenaries from Dr. Paul Zeitz and Dr. Sam Vandervelde. Throughout the month, Professor Matt DeLong also led a daily session on mathematical writing, incorporating a thorough analysis of the questions on the Qualifying Test. Professor Glen Van Brummelen presented on the early history of mathematics during the first two weeks, and Dr. Deborah Kent taught us about more recent math history in the final two weeks!

Each week Daniel took two breakout courses, allowing him to learn about a variety of topics in more depth. Here are his eight breakout topics. You will undoubtedly have plenty to learn and discuss about each of these topics with Daniel!

Basic Counting (Combinatorics) with Lara Pudwell (Prof Pudwell)  
Patterns, Numbers and Games with Geremias Polanco (Prof. Polanco)

Magic Carpets, Hoverboards, and Jet Packs with Nick Long (Dr. Nick)  
Special Relativity with Silas Johnson (Silas)

Making Simple Games Interesting with Nick Long (Dr. Nick)  
Taming the Torus with Sam Vandervelde (Dr.V)

Cryptology with Erin McNicholas (Erin)

## Random Walks with Paul Zeitz (Dr Z)

Rounding out the mathematics for the day, students saw the presentation of the new Problem of the Day (POD) just before lunch, enjoyed the presentation by a student of a solution to the previous POD in the late afternoon, and participated in math conferencing time in the evening. Math conferencing time was an excellent opportunity for students to work with each other and with the faculty and counselors on their homework and other interesting mathematics. In addition, there were many mathematical conversations at meals and during free time among students and between students and faculty and staff.

Our Student Life Director, Dr. Julie Vega, coordinated weekly events that helped campers get to know one another and reflect on participation in a community as they discussed learning styles, MathPath culture, and the professional journeys of people who work in mathematics. Dr. Vega and a team of counselors also led optional discussions about imposter syndrome and about historical movies such as *Hidden Figures* and *The Imitation Game*.

Students had the opportunity to participate in many recreational activities as well. During free time after lunch and dinner, a wide range of activities were offered, including sports and outdoor games, puzzles, card and board games, various recreational mathematical activities, the first ever MathPath 5K Fun Run, and even lying in the grass! For one day each weekend, there was a whole camp field trip; for the other day there were optional smaller group activities, including adventures and sightseeing opportunities around the greater Portland area. This year's whole camp activities included a trip to the Oregon Museum of Science and Industry; visits to Tillamook Creamery and Powell's City of Books; and a final excursion to Cannon Beach. For optional weekend trips, Daniel chose the movie *Spider-Man: Across the Spider-Verse*, the arcade, hiking, and laser tag/bowling.

Throughout MathPath, Daniel was excited, engaged, hardworking, and cheerful. Prof. Polanco remarked that he was "very enthusiastic about Patterns, Numbers, and Games," particularly extolling how Daniel "thinks for himself, asks questions until he feels convinced, and is always well engaged." Daniel brings interesting ideas to the classroom, and in Basic Counting, he even developed his own notation that captured the most important information in a binomial expansion exploration problem, demonstrating effective systematic thinking.

On the social side, Daniel was cheerful and polite. He loved to talk when he was engaged in conversation, but he was also an active listener. He participated in both outdoor and indoor activities, with a particular passion for the group soccer games and our group visit to Powell's. Daniel was a very active part of keeping his counselor group harmonious, and on one particular occasion he stopped the group from trying to shame another member for being late. His care for others made MathPath a better place.

Daniel had many opportunities to learn new mathematics and see how different areas of mathematics are related and connected. We hope that Daniel left MathPath even more excited by the wide world of mathematics than when he arrived. He is now a member of the growing family of MathPath alumni. We know that he has formed valuable relationships at MathPath and we encourage the maintenance and strengthening of these connections. The enriching environment of MathPath would not have been the same without Daniel.

Thanks and best wishes to you, and to Daniel in his bright mathematical future.

Sincerely,

The MathPath 2023 Staff

*Adrian* Lara Pudwell  
*Sukyoung N. Bae*  
*Leah* *Marcy Burman* *Asa Mar* *Em O'Shade*  
*David Ch* *Sh Van* *April Van*  
*Jake Vaze* *Sm* *Paul Zeit JJ*  
*Abigail Smith* *Conduct Van Cott* *Colan Howard*  
*Silvia* *K Hollingsworth* *Danielle Vandevacke*  
*Sydney Henke* *Jonathon Proger* *Heather*  
*Janice Logeman* *Hunter Hall*  
*Alex* *Kathryn Aymer* *Mark & Liz*  
*Ben Chopin* *James*