Some students have a background, identity, interest, or talent that is so meaningful they believe their application would be incomplete without it. If this sounds like you, then please share your story.

Over the years, I have obsessed over many things, from yo-yoing to unicycling, from insect collecting to SCUBA diving, from Rubik’s cubes to fungi. But while these interests have sinusoidally waxed and waned over time, one passion has linearly endured: mathematics.

My intrigue with math has helped me to excel in the subject at school, earning me perfect scores on many standardized tests, including AP Calculus AB as a freshman without having taken the class, and to deplete all my school’s math offerings as a sophomore. However, this formal record fails to betray the depth of my fascination with math as a hobby and a lens through which I view the world, constantly breaking everything I see into its basic mathematical building blocks.

I am rarely without a yellow pad in my possession for jotting down mathematical ideas or doodling ruler-and-compass constructions. This one simple object can turn an unfavorable situation, like being stuck in traffic, into a learning experience--creating differential equations to explain the traffic jam. With just a yellow pad and a curious mind, I have been able to blur the artificial distinctions between math and other disciplines I have interests in, such as programming, music, and nature. For example, I recently sat down to play the piano, when my ears, musically trained from 12 years of playing cello and bass, noticed that a perfect fifth is not actually perfect on a piano. So I whipped out my yellow pad and scribbled down some math on the harmonics of music and found that the tonal disparity is due to the miniscule difference between 2^(7/12) and 3/2, an error of about 0.1 percent. And as an avid naturalist, I have used my yellow pad to model local ecological interactions as discrete dynamical systems. Without consciously doing so, I have embarked on a quest to apply underlying mathematical principles to various aspects of life.

So when an opportunity arose to see firsthand how math is applied to the workplace in the form of a summer internship at the Naval Postgraduate School, I jumped on it. As part of a larger environmental effort to conserve fuel, I was assigned to a project team that, under minimal supervision, drew from my math and self-taught programming skills to model Navy aircraft carrier groups and their operations. Our findings were subsequently presented to a high-ranking Navy executive from the Pentagon.

While the true inception of my mathematical proclivity is as nebulous as the starting point of a fractal, it is safe to say that my mathematical journey started as a toddler playing “bath math,” using measured cups to add and subtract volumes of water in a rudimentary sort of algebra. From there, I discovered the advent of math books as a vehicle through which I could sustain my autodidactic tendencies. While my peers were reading the latest young adult novels, I would be engrossed in *100 Great Problems of Elementary Mathematics*. To this day, whenever I read about some interesting mathematical topic, a new math book seems to magically appear in the mailbox the next week, which I quickly devour in my free time, a process that has fueled my interest in a positive feedback loop that itself could be modeled with eigenvectors.

I have drawn inspiration from informal “tutors” who exposed me to new branches on the mathematical tree, from a graduate student who showed me the magic of number theory, to a retired professor who introduced me to math behind electromagnetism.

Following the examples of my mentors, I have recently assumed the role of tutor myself, taking on a sixth grader with similar mathematical inclinations and exposing him to the beauty of math. With math playing such an integral role in my worldview, I am delighted that I can now share my hobby. My mathematical journey has, like my compass on a yellow pad, come full circle.