My choice to pursue a mathematically-oriented career

Psychology, Success

At the age of seven, I emigrated from South Africa to London and was placed in the ‘ bottom set’ for Mathematics, but inside two years was selected for the girls’ Gifted and Talented Financial Skills Workshop at school. I went on to win an Academic Scholarship to secondary school and multiple academic prizes. In Year 8, I became the first female ever to represent my school in the Regional Finals of the Team Maths Challenge. In Year 11, I won the whole-school Memorial Essay Prize through my ability to write cogent and emotionally persuasive arguments, discussing my experiences and perspective as a British immigrant in an essay entitled ‘ What England Means to Me’. I had been runner-up in Year 10, so I was pleased that persistence paid off. However, despite my linguistic abilities, Mathematics is my true sanctuary and where I wish to pursue a related career.

My initial fascination with mathematical configurations began in the dentist’s chair, where, unusually, the dentist had a large MC Escher print on the surgery ceiling. This led me to research the mathematics of his work, as I love identifying patterns in Sequences and Series. I was therefore delighted to discover Escher’s ‘ Circle Limit IV’ in Simon Singh’s ‘ Fermat’s Last Theorem’, illustrating how the tessellation from the centre to the edge of a circle is increasingly reduced as the motifs come to lie infinitely close together. I have become intrigued by the Poincaré model of hyperbolic space and am eager to learn more about hyperbolic geometry. Whilst attending Mathematics Masterclasses with the Royal Institution on Saturday mornings and in the summer break, a session on Chaos introduced me to the Mandelbrot Set, another application of recurring patterns on a complex plane. In a lecture about the ‘ Mathematics of Paper’ at the 2017 Cambridge

Science Festival, I learnt that the dimensions of a piece of A4 paper are selected such that it can be halved infinitely, whilst always maintaining the Lichtenberg ratio.

My interest in statistics was sparked by conversations with my father, an actuary. My various work experiences, including actuarial work at Bupa (2017), economics at Oxera Ltd (2018) and the 2017 Morgan Stanley “ Step In Step Up” programme (for female Sixth Form students) all reinforced this. At Bupa, for example, I used Excel pivot tables to analyse health insurance competitor premium rates for different risk factors such as postcode and age, which helped establish optimum market prices. I also learnt about how companies use stress-testing. I have since enjoyed watching online lectures about Monte Carlo simulations and avidly read about the 2008 financial crisis in Michael Lewis’s ‘ The Big Short’ where world markets failed the ultimate stress-test. This resonated with me in my later A-Level Economics classes.

I have developed leadership skills through chairing Student Council meetings and as Finance Director of my Young Enterprise team. In my role as Co-Editor of the College Student Magazine, I demonstrated initiative – this is our first student magazine. Completing the Vitality London 10 000 race in 2016 for charity taught me the importance of perseverance and planning, and to pace myself to sustain energy. My commitment to charity led to my participation in the Young Enterprise Tenner Challenge, where I compiled, printed and sold joke books around my school and local community. Notably, I ended up raising the most out of any individual at my school. Although playing piano is just a hobby, in Year 7, I was awarded second place in the whole school

talent show, despite being the youngest entrant. I have achieved or surpassed my personal academic and other goals through a combination of aptitude and tenacity.

Looking ahead, my determination to succeed and eagerness to use my analytical abilities, equip me for success not only at university, but as a platform for solving mathematical and statistical problems and a future mathematically-orientated career.