From the laparoscopic appendectomy surgery to the blood tests that uncover my family’s thalassemia genes, I could not help but imagine what the situation was decades back, when surgeries and technologies we deem 'standard’ today had not existed. The immense amount of recent studies for new vaccines and machines for COVID-19 itself developed from the earlier findings, or else we’d be fighting over ‘iron lungs’.

This frequent exposure bloomed my curiosity and motivation to contribute to the health industry. After my grandfather’s transvenous implantation in eighth grade, I found enthusiasm in watching channels like Gebrüder Betz Medical Animation and fuseschool, which allowed me to virtually see procedures, and how each known principle and findings build up from one another, reflecting upon the problems and creating this intricate solution upon that. After my family received news of minor-thalassemia genes in our line, it inspired me to write a review paper on newly FDA-approved drugs for sickle-cell disease. After my grandfather was diagnosed with lung cancer, the ‘Emperor of the Maladies’ gave me hope, as the development of understanding and strategies for cancer treatments have increased. As time goes by, my immense desire to contribute to the health industry grows, as well as curiosity in both medicine and technology advancements. Hence, I am certain that a career in biomedical engineering is where I should be.

Engineering requires strong determination and great analytical skills. But amongst that, being able to merge mathematics and physics principles is a solid necessity. Mathematics is a discipline that requires a high degree of curiosity and the will to challenge one’s self. Through training and doing varieties of problems, I was able to obtain the bronze and silver medals in SEAMO math olympiad, as well as distinction award in Cayley, an international math competition held by the University of Waterloo. However, I wanted to solve more real-life problems. The world of physics filled the gap, as I learnt the implementation of derivations and integration rules into understanding physics principles. From the movement of a car to finding energy released by a particular molecule, I relish the relationship and dependency they have for each other, and continue to explore them by joining a school club where I teach grade 10 students on IGCSE physics topics, as well as other competitions like the ASEAN physics olympiad competition, where I obtained a bronze medal.

Above that, I too found immense interest in understanding all processes that relate back to human biology. I was lucky enough to compete in competitions like NMGBC (National Medical and General Biology Competition held by University of Indonesia), that allowed me to go beyond basic biology principles and study medical problems and diagnosis. Teaching biology to my juniors too became a pathway on how I increased my knowledge beyond class. But above that, topics like thermodynamics and organic chemistry allowed me to go more in depth. I have enlisted and ranked in competitions held by multiple national universities for chemistry, and each one never fails to make me wonder just how great the relationship between all sciences and math subjects really is.

Despite fitting in the analytic and problem skills area, good communication and leadership skills are also essential. Enrolling in an international school allowed me to practice my english speaking and writing skills, and even allowed me to obtain an A\* in First-language English IGCSE. Above joining several debate competitions, I had the opportunity to join Worlds Scholar's Cup, an international competition with over 15,000 students joining over 65 countries, that trains my ability to use research to back my debating skills, as well as writing. Through self-training, my team and I won a total of 5 trophies, 27 gold and silver medals, and I was ranked 1st in writing for the regional round. As for leadership, I have produced and directed several plays in school, became an artist manager for Cindercella at my school’s cup, managed the resources for Ronald’s McDonalds volunteering programme as well as co-founder of two instagram platforms called Listen Louder and Life-online which aims to shine spotlight on underrepresented issues, and the other to educate Indonesia’s youth about life-sciences.

As I joined an international research competition held by the Iowa University, me and my team achieved the most voted award on finding a way to solve lymphatic filariasis in Indonesia. The problem began by realizing that despite a programme by WHO was implemented in Indonesia to solve the epidemic of lymphatic filariasis by doing mass-drug administration, data still shows high numbers of cases in Indonesia, with reasons being that drugs need to be administered annually for 5 years. After digging through primary research after research, our team proposed that the best way to continue was through gene silencing of the Cactus protein in mosquitoes, which a study in UPenn have shown to be able to decrease the number of *Brugia malayi* larvae that develop into the transmission stage. Despite our team’s findings however, implementing it in our country is quite hard, as research here is not as advanced as others. Not to mention, we as high-school students are not qualified to do such research yet as our understanding of the biology world is still at the tip of the ice-berg.

Hence, to make my ideas a reality, I need a degree to go further. UK is ranked second in the world for science and research, with 54% of them titled as ‘world-leading’. The amount of learning and experiment opportunities are endless. Hence, I want to be an international student, to gain experience and knowledge from more developed countries, so that one day, I am able to give back to the world, especially my own community.

With that being said, my love for science and mathematics, supported by my experiences and achievements, makes me certain that a field where I could practice all of this to solve real-life problems is my top-pick. With all the experience and knowledge I will gain, my goal is to contribute back to the health industry that has helped me and my family, by doing my utmost best to solve health problems others unfortunately have.