My realisation of the imminent threat of global warming started from a school charity event dedicated to the Pakistan floods. This ignited my interest in sustainable energy as a potential solution to rising sea levels. As I explored this topic further, I did research on Carnot cycle thermodynamics and energy conversion efficiency whilst exploring energy storage systems in hydroelectric dams. The possibility of achieving energy conversion beyond that of the Carnot excites me. Becoming a Mechanical Engineer is my best option to design efficient and sustainable energy devices.

In junior year, I made an automatic animal feeder, which I developed to feed stray animals in Oman. After sketching the blueprint, I developed the first prototype in the Design & Technology workshop at British School Muscat. Powered by a solar panel to take advantage of the abundant sunlight, this wood-based model boasted an Arduino Uno which uses C++. However, since I was more familiar with the stray animal situation in Indonesia, I decided to develop it further there. After contacting BAWABALI, one of the biggest shelters in Bali, I formulated a plan to give them a functional feeder. Computer-Aided Design helped create a detailed 3D model to visualise the next prototype whilst eliminating the need for a workshop. This model tackled issues from the previous one as it was equipped with a larger food capacity and wider dispensation. Upon the final meeting with BAWABALI, the product was finished and implemented in their main shelter. After donating it, I started to work on the prototype for Oman. I concluded that the same blueprint can be used but that a stronger wood was necessary to withstand the high temperatures of the area.

To get a taste of the engineering industry, I did a summer internship at Gapura Liqua Solutions (GLS), a water treatment processing plant company. Guided by mentors, I discovered that pipe flocculators bind unwanted substances in the water together to create 'floc particles' and in the DAF tanks, they rise up to the surface because of bubbles and are removed. This became clearer when I saw these machines in action during a site visit to their newest plant in Jakarta. The sheer volume of the water passing through was impressive considering how compact the plant was. I covered these sections in my report, where I had to determine whether GLS could reach their ultimate goal of a supply capacity of 1500 litres per second. I had the opportunity to present this to the CEO and engineering team, and they admired my evaluation of their new Activated Media Filter as it contributed to increasing the efficiency and the environmentally friendly aspect of the plant.

Although individual work has helped me acquire technical knowledge, I also hold great value in teamwork. During the DofE Bronze expedition, my team had our own responsibilities and handled them to achieve the optimal camping experience. As well as learning fundamental teamwork skills in my DofE expedition, I was able to focus on crucial organisational skills during my volunteering where I helped the librarian clean and rearrange books.

I look forward to learning about other aspects of thermodynamics and fluid mechanics so I can improve renewable energies by increasing viability and efficiency. I plan to work in the renewable energy industry to develop a device capable of utilising as much useful energy from energy transfers. I think this is crucial as it paves the way to make renewable energy implementation more feasible, reducing greenhouse gases, and thus, contributing to solving the impending problem of global warming. This would give me a chance to help Indonesia as 25% of the country is projected to be underwater by 2050.