

## **Why do you want to study this course or subject?**

From when I took my first flight at six years old, I became unconditionally mesmerised by planes and how they work. Over time, this interest has “skyrocketed”, whether it be through watching planes land and take off at airports, or obsessively watching air crash investigation programmes on television. When I saw there was a course specifically designed for the wonder that is aerospace, I knew it was perfect for me. I could learn about everything that has fascinated me for years. I want to study aerospace engineering at university to further my learning of key aspects in the aerospace industry. The three main topics I am keen to learn about are aerodynamics, materials and structures, as well as flight dynamics and control. In the future, my dream is to work in the Air Accidents Investigation Branch of the Department of Transport and make this world a safer place, especially in one of the most innovative sectors of travel at this time.

## **How have your qualifications and studies helped you to prepare for this course or subject?**

In my mechanics module, I particularly enjoyed learning the relationship between projectile motion and defence aerospace. Here, they have to solve the problem of when to launch weapons from a high altitude to ensure it hits the target. With Physics, I took particular interest in circular motion and how planes can turn mid-flight, using lift on the wings as a centripetal force. History has given me an insight into the development of the aerospace industry over time, especially when learning about the Berlin airlift during the Cold War; without the technological advancements of aerospace at that time, thousands would have perished.

## **What else have you done to prepare outside of education, and why are these experiences useful?**

Last summer I gained work experience at Rolls Royce in Bristol. The meticulous accuracy and aspects of creativity that we were exposed to during that week confirmed that aerospace engineering is categorically my preferred career. During my work experience at Rolls Royce's Bristol plant in the Systems Design Technical department, we were assigned a task to redesign a HPC stub shaft to meet a required life of 30000 hours, whilst maintaining interchangeability between the new and current design, and to minimise additional weight and cost of the product. Throughout the week, we used specially designed aerospace technology to complete and test our task, which we then pitched to a group of engineers in the form of a presentation. Overall, the week taught me so much, and to work around chartered aerospace engineers was an incredible experience. After this I also participated in a broad-based engineering summer school at the University of Salford, at which I chose to focus on aerospace engineering. This introduced me to the upcoming surge of the use of composite materials, something key to the more

recent projects in the aerospace world. We also paid an industrial and educational visit to Airbus Broughton, offering tours of the site factories and tests of their innovative virtual reality headsets. In addition, we visited one of the remaining Concorde's at Manchester Airport. I discovered that part of its failure as a commercial aircraft was due to the 2000 crash of one of its fleet. To overcome the issue, they made several modifications, including adding Kevlar lining to the fuel tanks. It was recognised that several materials used in the fleet caused a series of failures which precipitated such a tragic crash. This understanding led to recent innovations in composite materials used in today's aircraft, namely the Boeing 787 and Airbus A350. I am honoured to be Head Girl at my school. I help by supporting and giving speeches at school open evenings, partaking in reconciliation assemblies and organising a mentoring scheme for the first year A-level students, as well as many other tasks given by my head of year and headmistress. Both in and outside of school I have taken part in many clubs and activities, such as playing in school football tournaments, being a Girl Guide, volunteering at Cancer Research and swimming competitively.