

### **STAAR Camp 2018**

I was fortunate to be one of eighty successful nominees from the UK who was chosen for the STAAR (**S**ummer **T**ime **A**dvanced **A**erospace **R**esidency) Programme - a course designed for Year 10 students who demonstrate an interest or aptitude for one or more STEM subjects. This is a fully-funded, hands-on residential camp, where STAAR Recruits are taught diverse aeronautical concepts such as: wing design; hypersonics; power generation; how payloads affect weight and balance; innovative new materials and technologies; and the capabilities an aerospace system requires to achieve a mission objective. Recruits spend five days with chaperones on-base at RAF Cosford.

Each day of the course was delivered at RAF Museum Cosford (or on the RAF Cosford base) by RAF Museum STEM Ambassadors, industry experts from Northrop Grumman, Tablet Academy and RAF personnel. **Day 1:** we studied the Dam Busters mission (how the mission was designed, how the bomb was developed to bounce to avoid obstacles such as torpedo nets, and how trajectories were calculated). **Day 2:** How jet engines work (components of a jet engine, materials that they are constructed from and why they are selected, and how the engines go in and out of reheat). There was also an aircraft wing design challenge where we were challenged to construct the most aerodynamic wing out of MDF, which was then tested in a wind tunnel. **Day 3:** Radar and Triangulation (we used a mini radar dish to scan the room for objects and then utilised this information to work out distances). A serving pilot also briefed us about one of his real-life combat missions, and then tasked us to plan a mock mission where we attack an enemy base. This entailed calculating fuel and any extra resources needed (such as air support) to deliver the payload and secure a successful mission. **Day 4:** MTS (**M**echanical **T**raining **S**quadron) – exploring the inside of a working aircraft engine using probes to understand how it was constructed. In groups, we also planned a mission where we had to surreptitiously deliver a payload of hardware to an agent in a foreign country. This included deciphering messages, unencrypting a flash drive, designing a suitable aircraft, calculating fuel consumption, evading detection and arranging the final payload delivery method. **Day 5:** We presented our final mission in front of parents, sponsors and RAF personnel.

The course was demanding, with unfamiliar concepts thrown at us, a steep learning curve, and a fast pace. A typical day started at 7.45am and lasted till 9.00pm, with lights-out at 10.30pm prompt. We were thrown in at the deep end, but I enjoyed the challenge and have fond memories of my week. I came away with a better appreciation of how STEM is essential to the RAF. I am grateful to Mr Collins for nominating me for this experience and I thoroughly recommend that present Year 10 students go for it too!

Further details at:

<https://www.rafmuseum.org.uk/cosford/schools-and-colleges/staar.aspx>

