Engineering Pathways in Practice

Many D&T teachers recognise that while students enjoy practical work, their understanding of engineering can remain narrow. Exploring different types of engineering, from mechanical and electrical to digital systems, can help learners better understand what engineers actually do and how classroom knowledge is applied in practice.

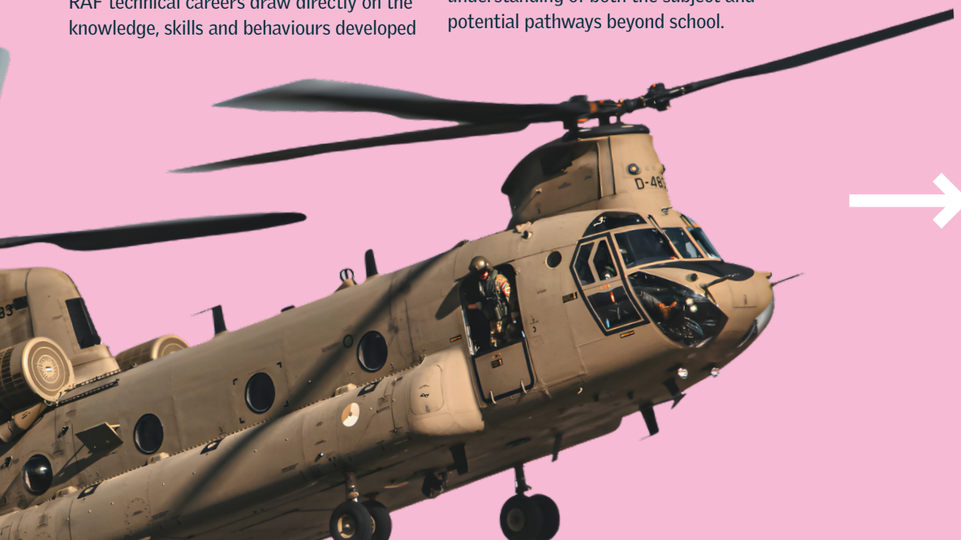
Too often, learners see engineering as a single career rather than a range of roles requiring different skills, knowledge and ways of working.

Different Types of Engineering

Using examples from across engineering, such as mechanical, electrical and digital roles, helps provide clearer context for what engineers actually do. These roles reflect the principles taught through D&T, including systems thinking, materials, electronics, safety and problem-solving. RAF technical careers draw directly on the knowledge, skills and behaviours developed through D&T, from mechanical systems and electronics to digital technologies and systems thinking. These roles provide useful classroom contexts for applied problem-solving, reliability, safety and teamwork.

Curriculum Links

By linking classroom projects, such as the Inspired by Industry Short Term Shelters context, to real engineering roles, teachers can help students see how different types of engineering respond to real needs, constraints and users, supporting a deeper understanding of both the subject and potential pathways beyond school.



An Engineering Officers Perspective
tinyurl.com/55hd6kpu

Short Term Shelters Inspired by Industy KS3 Context
tinyurl.com/2xapyknf

RAF Apprenticeships
tinyurl.com/4enuwmey

Mechanical Technician

Mechanical technicians maintain vehicles and aircraft support equipment that underpin RAF operations. Their work includes routine servicing, fault finding and ensuring equipment is safe and operational. The role relies on applied mechanical knowledge, an understanding of systems and consistent safe working practices. Technicians must interpret technical documentation, diagnose faults methodically and assess whether equipment is fit for use. These processes closely reflect the approaches encouraged in D&T classrooms, particularly where reliability and performance are key considerations.

Aircraft Technician (Avionics)

Avionics technicians are responsible for the electronic systems that keep aircraft operational. This includes radar, communications, navigation and electrical power systems. Training focuses on electronics, digital systems and fault diagnosis before technicians apply this knowledge to complex aircraft systems. Accuracy and attention to detail are essential, as faults must be identified and resolved with an understanding of how individual components affect the wider system. This provides a strong real-world context for teaching systems thinking and electronics within D&T.

Communications & Digital Technician

Technicians working in communications and digital roles support radar, networking and information systems across RAF sites and deployments. Their work combines ICT fundamentals, electronics and networking with practical installation and maintenance. These roles demonstrate how digital knowledge is applied in operational environments, offering useful classroom links to control systems, data, networking and cyber awareness at KS3 and KS4.

Cyberspace Communication Specialist

Cyberspace Communication Specialists are responsible for maintaining and protecting the communications networks the RAF relies on every day. Their work underpins everything from secure information sharing to operational coordination, both in the UK and overseas. The role combines ICT, networking and systems management with an understanding of cyber security and data protection. Specialists are trained to establish, monitor and maintain complex communication systems, as well as identify and respond to potential threats or disruptions.

Engineering Technician (Electrical)

Engineering Technicians (Electrical) are responsible for installing, maintaining and repairing electrical power and distribution systems across RAF bases and deployed locations. Their work supports everything from aircraft operations and lighting systems to communications infrastructure and essential services. The role combines electrical engineering principles, fault diagnosis and safe working practices with an understanding of regulations and risk management.