



Stocksbridge High School

Curriculum Intent Statement

Design and Technology – KS4 Engineering

“Engineering is the closest thing to magic that exists in the world.” — Elon Musk

“The engineer has been, and is, a maker of history.” — James Kip Finch

At Stocksbridge High School, our Engineering curriculum empowers pupils to Believe, Achieve, and Succeed by combining scientific principles with creativity and practical application. Engineering is about solving real-world problems through innovation, design, and precision. Our course builds on the foundations of KS3 Design and Technology, developing independence, resilience, and mastery of technical skills while introducing new knowledge essential for progression into further study or apprenticeships.

Rooted in the proud heritage of Stocksbridge where Samuel Fox transformed a cotton mill into a steelwork in 1842 our department seeks to inspire every learner, regardless of background or gender, to unlock their engineering potential. We aim to nurture ambition and confidence, ensuring pupils leave with the skills and mindset to thrive in a rapidly evolving technological world.

Our approach reflects the school’s values: Be Positive, Be Kind, Be Confident, Be Reflective embedding respect, collaboration, and continuous improvement in every lesson.

Course Structure and Purpose

The WJEC Level 1/2 Engineering qualification is divided into three mandatory units:

Unit 1: Engineering Design

Learners analyse engineered products to propose design solutions that meet specific requirements. They develop critical thinking, explore product functionality, and learn to communicate ideas effectively through iterative design and evaluation. This unit promotes creativity, problem-solving, and collaborative discussion under real-world time constraints.

Unit 2: Producing Engineered Products

Pupils apply practical skills to manufacture an engineered product, interpreting technical information and planning processes. They refine their ability to work safely and accurately with tools, equipment, and materials, understanding why different engineering processes are fit for purpose.

Unit 3: Engineering Science

This externally assessed unit consolidates knowledge of materials, processes, and mathematical principles. Learners explore historical influences on engineering and apply scientific understanding to solve problems, using technical drawings and calculations to communicate solutions effectively.

Future Pathways

This qualification opens doors to careers such as Architect, Aerospace Engineer, Automotive Engineer, Civil Engineer, Structural Engineer, Project Manager, and many more, as well as progression to Level 3 Engineering courses or apprenticeships.