

Design & Technology (STEM) & Engineering

Key Stage 3 (4 hrs a fortnight)

Key stage 3 lays the foundations for both GCSE D&T, STEM & Engineering

Explore

- Identify a practical problem to solve and create a Design Brief
- Research relevant areas related to problem, such as production methods
- Investigate existing products, technologies and systems
- Investigate potential users/stakeholders
- Analyse their research to produce a Design Specification.

Create

- Communicate a range of ideas
- Develop ideas through CAD (Computer Aided Design) & physical prototyping
- Independent practical work
- Use a range of tools, equipment & processes across woods, metals, plastics, systems, electronics & ICT workshops

Evaluate

- Identify positive negative points to build into design optimisation.
- Evaluate against the user/stakeholder. Is the product fit for purpose?
- Ongoing analysis throughout the design process.
- Evaluate against the original Design Brief.

KS4 - OCR Engineering (5 hrs/2wks)

OCR Cambridge National Engineering Design/Engineering Manufacture. Level1/2. Are a Nationally recognised qualification & can be built on in further & higher education establishments, as well as leading on to apprenticeships.

Engineering: 4 Units.

- **R105** (25% of mark): Design Briefs, Design Specifications & user Requirements (1hr exam)
- **R106** (25% of mark): Product analysis/disassembly & research
- **R107** (25% of mark): Developing & presenting Engineering Designs
- **R108** (25% of mark): 3D Design realisation (Prototypes & practical work)

KS4 – OCR GCSE Design & Technology (5hrs/2wks)

In Yr10, students produce a range of mini projects across 3 different workshops.

Coursework topics released **1st of June** of yr10. The coursework (NEA) is split into the following.

Non-Examination Assessment (NEA) –Iterative Design Challenge Approx 40hrs (worth 50% of GCSE)

- **Explore:** Identify problem & investigate (see KS3 for reference) –Marked out of 25
- **Create:** Design thinking & communication (see KS3 for reference) –Marked out of 40
- **Final Prototypes:** Use a range of practical skills (see KS3 for reference) –Marked out of 20
- **Evaluate:** Against, Design brief, stakeholder/user. Demonstrate ongoing analysis throughout design process. (see KS3 for reference) –Marked out of 20
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Examination (worth 50% of GCSE) –2 hours. –Marked out of 100

- Design Process
- Materials, processes, & manufacturing theory
- 15% Maths & Science content –Functional Maths.