



Engineering



Archdiocese of Liverpool

Curriculum intent:

In Year 10 pupils develop their depth of knowledge and understanding by working through a range of mini NEA projects. Pupils use creativity and imagination to design and manufacture products and prototypes that solve real and relevant problems that consider social, moral and cultural values, forming cross-curricular links, pupils draw on disciplines such as Mathematics, Science, and Computing. Pupils use a range of media in order develop their own design style that will prepare them for their major GCSE project in Year 11.

Year 10

TERM 1

Content

Bottle Opener

- 3.1 Core technical principles
 - Material categories
 - Material properties
- 3.2 Specialist technical principles
 - Forces and stresses
 - Specialist techniques and processes
- 3.3 Designing and making principles
 - Tolerances

Concepts and Skills

Tools & Equipment
Manufacturing processes & Techniques
Health & Safety
Materials: Metals & Polymers
Design process
Scales of production
Target market & commercial viability

TERM 2

CAD/CAM

- 3.1 Core technical principles
 - Systems approach to designing
- 3.2 Specialist technical principles
 - Specialist techniques and processes
- 3.3 Designing and making principles
 - Communication of design ideas
 - Specialist tools and equipment
 - Specialist techniques and processes

2D-Design
Google sketch up
Tools & Equipment: Laser cutter, CNC Router
Manufacturing processes & Techniques
Health & Safety
Materials: Metals & Polymers
Conventions of Engineers drawings

TERM 3

Engineers Clamp

- 3.1 Core technical principles
 - Mechanical devices
 - Materials and their working properties
- 3.2 Specialist technical principles
 - Forces and stresses
 - Surface treatments and finishes
- 3.3 Designing and making principles
 - Specialist tools and equipment

Design Context
Research & Analysis
Health & Safety
Lathe & Milling machine techniques
Site Management
Materials: ferrous & Non-Ferrous metal, Nylon
Maths: marking out & tolerance
Stock sizes & standardised parts

