Quality of Education: *Curriculum is planned and sequenced so that new **knowledge** and **skills** build on what has been taught before and towards its clearly defined end points.*

Ormiston Victory Academy

SUBJECT: DT - Engineering	**CURRICULUM PROGRESSION PATHWAYS**	**CL: Dr J. Debney**		
KS3 (Level 1) D&T	KS4 (Level 2) BTEC Tech Award Engineering	KS5 (Level 3) Tech-Level Engineering	Further Education and training	Careers
6-week rotations. **Y7 Pull Along Toy** **Knowledge:** Woods, Cam Mechanisms and types of motion. **Skills:** Cutting, shaping and finishing timber. **Y7 Night Light** **Knowledge:** Conventional flow of electricity and circuit design. CAD/CAM **Skills:** Soldering, 2D Design and laser cutting. **Y8 Balancing Toy** **Knowledge:** Properties of woods, metals and plastics. **Skills:** Introduction to Engineering manufacturing skills **Y8 Box Project** **Knowledge:** Woods **Skills:** Cutting, shaping, Joining and finishing timber.	**Year 9** **Knowledge:** Mechanical systems and structures, materials knowledge (Metals/Plastics), 2D / 3D CAD software. **Skills:** Problem Solving and teamwork, core manufacturing processes, reading engineering drawings, graphic communication techniques, responding to design briefs. **Mini Projects:** Catapult, Trophy, Soft jaws, adjustable bevel, stationery holder. **Unit 1 LAB:** Responding to a design brief (Mobile phone stand) **Year 10** **Unit 2 LAA (Bike Break):** Investigating Engineered products (Bike brake). **Unit 2 LAB (Multi Tool):** Learning engineering through disassembly techniques. **Unit 2 LAC (Spanner Production):** Manufacturing an engineered product. **Knowledge:** Classification and working properties of Materials. Production planning. **Skills:** Metal working and fabrication **Year 11** **Unit 3:** Responding to an Engineered Brief Exam **Knowledge:** Engineering design and investigation **Skills:** Design, written and mathematical communication. **Unit 1LAA:** Engineering sectors, job roles and careers.	**Year 12:** **Unit 5:** Production and Manufacturing. **Knowledge:** Manufacturing systems and levels **Skills:** Manufacture of reading lamp following Engineering working drawings. (practical skills) **Unit 3:** Engineering Design **Knowledge:** Designing the next generation desk lamp for Jake Dyson's Engineering company. **Skills:** Graphic Communication and 3D CAD skills through fusion 360 **Year 13:** **Unit 2:** Mechanical Systems **Knowledge:** Mechanical Systems **Skills:** Building a mechanical system that includes motors and control. **Unit 1:** Materials Technology and Science **Knowledge:** Materials and Engineering Science **Skills:** Application of knowledge (exam) Jan - June	**Engineering Degree** **Apprenticeships in:** Aerospace automotive Broadcast civil engineering communication construction electrical energy hydraulics marine mechanic mining process engineering systems engineering telecommunications transport. **Levels** intermediate advanced higher degree	Aerospace Engineer. Agricultural Engineer. Automotive Engineer. Biomedical Engineer. Chemical Engineer. Civil Engineer. Computer Engineer. Drafting and Design Engineer.

Mechanical Systems Materials Knowledge Metal Working & Fabrication Responding to an Engineered briefs Graphic Communication