CURRICULUM MAP

YEAR 11

'GCSE D&T'
NEA – A design & make coursework assignment on a theme set by the exam Board, (50% of final grade).
Exam Preparation – final theory content and review in preparation for the summer exam.

'BTEC Tech Award in Engineering'
Component 2 - Investigating an Engineering Project Learning Aim B - Investigate a given engineered product using Disassembly techniques – Carry out further product analysis.
Learning Aim C - Plan the manufacture of and safely reproduce/inspect/test a given engineered component – Make the multi-spanner element of the tool.
Component 3 - Responding to an Engineering Brief – prepare for and sit the exam element.

'GCSE D&T'
- Skills Board – A series of focused skills based make activities in order to create a 'skills board' covering a range of key skills & knowledge.
- Practice NEA Activity – addressing key Designing and Making principles, (two lessons per week).
- DT Theory and Exam Preparation: (single lesson per week), covering core technical principles including:
  - New & Emerging Technologies.
  - Energy Generation and Storage.
  - Developments in new materials.
  - Mechanical Devices.
  - Materials and their working properties.

YEAR 10

'Programming'
This unit of working will focus on programming and related skills. Potentially this programming activity will output to the BBC microbit, or a robotic arm type unit..

'Mixed Materials Textiles'
Focus on combining textiles with other materials to create products. Develop products suitable for production in a small scale enterprise.
Theory knowledge covers issues relating to enterprise, including crowd funding, virtual marketing and virtual retail, co-operatives & fair-trade. Also carry out a designer study focussed on the work of Raymond Templier.

'Fusion 360'
Develop your skills in the use of the Fusion360 commercial CAD software enabling you to draw products accurately, render products in order to create presentation drawings and generate orthographic drawings. Where appropriate enable you to output to a 3D printer or CNC router.

'BTEC Tech Award in Engineering'
Component 1 - Exploring Engineering Sectors and Design Applications
Learning Aim B - Explore engineering skills through the design process - Use CAD skill to design a product for a client. Present the design ideas using correct drawing conventions. Refine this design in response to feedback.
Learning Aim A - Understand engineering sectors, products and organisations, and how they interrelate - Study of a product contributed to by a range of sectors. Examine in detail two engineering organisations of varying size and from differing sectors.
Component 2 - Investigating an Engineering Project
Learning Aim A - Understand materials, components and processes for a given engineered product - Carry out a detailed product analysis. Investigation of a bike multi-tool.

A visit to the BMW Mini production facility in Oxfordshire, (Engineering students).

YEAR 9

'The Lamp'
A 'double length' unit in which you manufacture a lamp with a cast concrete base, a laminated 'neck' and a Vac formed 'reflector'. Consider concepts including designing for a client, and modelling techniques. Be introduced to the process of turning on a wood lathe, and PCB production using strip board. Practice your soldering skills. Theory knowledge also covers the understanding of the 'casting', 'composites' and plastics processes including vacuum forming and injection moulding. Carry out a designer study focussed on Marcel Breuer, the architect and furniture designer.

'Graphic Design Skills'
Develop your ability to sketch including freehand sketching, drawing in isometric & perspective, & rendering. Produce quality design pages. Learn about schematic diagrams. Study designer, Harry Beck.

'Electronic Products'
Make an electronic nightlight and frisbee. Understand what a PCB is, how they are designed, work & are made. Learn to solder. Practice 2DDesign, laser cutting, line bending and vacuum forming. Learn about input, process, output, component function and component identification.

YEAR 8

'Textiles Container'
Develop both hand and machine based sewing skills. Learn about embellishment techniques and skills, and design and create their own version. Learn how to use textiles components such as zips. Theory knowledge of textiles materials and the designer, Alexander McQueen is also developed.

'Mechanical Systems'
Develop an understanding of a wide range of mechanisms and model a number of these, adapting them to your own design. Theory knowledge is also developed in the area of 'papers and board's.

'Engineering Challenges'
Develop design skills and engineering knowledge by repeatedly cycling through the design, make, test, evaluate, re-design, re-test …. process. Theory knowledge is also developed in the areas of a range of engineering principles.

'The Train'
Develop understanding of/skill in using range of tools and equipment, with a focus on accuracy and quality of making. Gain an understanding of 'technical/engineering drawing' with a specific focus on 3rd Angle Orthographic, parts being drawn with dimensions and exploded drawing.

'Sumos'
Develop ability in the use of of 2DDesign. Be able to successfully follow the 'five tracing rules' of 2DDesign. Use these skills and the laser cutter to produce your 'Sumo'. Understand and use the line bending process. Be introduced to the use of the Fusion 360 commercial CAD software.

'Textiles e-Cube'
Produce a textiles 'e-cube'. Learn, & use a range of decorative textiles techniques, various e-textiles materials & components to light the cube up. Theory work covers a range of smart materials& technical textiles.

Participation in the Lego/RAF Robotics Programming Competition.

YEAR 7

'Tinkercad Superhero's'
Learn and develop significant CAD Skills using the Tinkercad software. Output via 3D printing to create a 'superhero' character of your own design. Package the character in a 'blister pack' that you design and make by the. Theory knowledge is also developed in the areas of the advantages and disadvantages of CAD/CAM.

'Passive Amplifier for a mobile phone'
Learn and develop practical skills in using a range of woodworking tools, equipment and processes. Create a range of basic woodworking joints and make use of templates and jigs. Theory knowledge is also developed in the areas of 'Natural and Manufactured Timbers' and the designer, Gerritt Rietveld.

Y5/Y6 Space Challenge Day

MEDEN SCHOOL