

DT – Product Design Year 10	
Half term 1	Students will acquire knowledge of manufacturing methods and the Material properties of Woods and manufactured boards. Timber project – Storage. Engineering orthographic drawing is taught using traditional drawing techniques and students are expected to become proficient in this and use this skill and knowledge in the practical projects. Students will learn about the range of timber joints and will practice making a range of the joints to improve their practical making skills.
Half term 2	Students will continue to make a range of timber joints. Students will be taught Oblique, Isometric drawing and perspective drawing techniques and the use of colour markers to render drawings. Students are expected to use these techniques when designing. A practical project using timber will be undertaken with students designing their own product and identifying tools and equipment required. Combined with the project students will learn about Market Pull/Technology Push and energy sources both renewable and non-renewable.
Half term 3	Continuation of the practical project. Students will be taught to use the 3D CAD “ Strata 3d CX” and use this to create a virtual photo realistic model of their design for the practical project. Types and application of finishes will be taught within the project and students are expected to apply this knowledge. Students will learn about Modern & Smart materials and their applications in products. Types of motion, Lever classes and mechanisms including gear trains, cams, cranks and the mathematical calculations of velocity ratios, output speeds and loads.
Half term 4	Students will acquire knowledge of the materials properties of polymers, composite materials, paper/cards, technical textiles and associated manufacturing techniques.
Half term 5	Students will begin the practical design and make NEA project. This will cover the Design Context/Challenges, primary and secondary research culminating in the development of the Design Brief & Specification. Students will be required to develop design ideas using previously taught design drawing techniques, virtual 3d modelling and creating test samples in the workshops. Students will also acquire knowledge and understanding of the material properties of metals and associated manufacturing techniques. Students will learn about sustainability, The 6Rs, ecological issues in manufacturing and Ergonomics/Anthropometrics, this knowledge is to be used to support their NEA.
Homework expectations	Students are expected to do least one hour each week which will support students in consolidating learning from lessons. Practising an exam style answer or reviewing work that should be improved is very beneficial. In addition to this students should regularly review their NEA and aim to ensure this is always up to date with their latest work.
By the time you finish key stage 4 you’ll be...	Able to design simple products using your knowledge of a range of materials and processes. An able designer with the ability to solve problems in a creative manner. Have a thorough knowledge of industrial processes and an understanding of how products are designed and manufactured with an appreciation of how this may affect the environment.

DT – Product Design Year 11	
Half term 1	Students will develop design ideas through drawing in 2d and 3d, create virtual models using Strata 3dCX and make prototypes in the workshops testing forms and material combinations. Students will prepare engineering drawings and planning of manufacture for their final design. Students will learn about microelectronics including different types of sensors as inputs, programming microcontrollers for processing and LED's, speakers and buzzers for outputs.
Half term 2	Students will begin making the final design for the NEA. It is expected that students will provide photographic evidence of their making and create a making diary for their NEA during the making process. Students will be taught the main categories and types of textiles, understanding their physical properties and uses in products.
Half term 3	Students will complete the making of their design for the NEA and complete the making diary. Students will investigate, analyse and evaluate the work of two designers (past or present) and will choose from a list provided by the exam board to create two PowerPoint presentations.
Half term 4	Students will evaluate the design and making of their product which completes the NEA portfolio. Students will investigate the work of two of the following companies: • Alessi • Apple • Braun • Dyson • Gap • Primark • Under Armour • Zara, creating a PowerPoint. Revision and exam preparation.
Half term 5	Students will follow a course of revision to prepare them for the June exam.
Homework expectations	Students are expected to do least one hour each week which will support students in consolidating learning from lessons. Practising an exam style answer or reviewing work that should be improved is very beneficial. In addition to this, students should regularly review their NEA and aim to ensure this is always up to date with their latest work.
By the time you finish key stage 4 you'll be...	Able to design simple products using your knowledge of a range of materials and processes. An able designer with the ability to solve problems in a creative manner. Have a thorough knowledge of industrial processes and an understanding of how products are designed and manufactured with an appreciation of how this may affect the environment.