Design and Technology Curriculum Overview 2022-2023

Year Group	HT1	HT2	HT3	HT4	HT5	HT6
7	Block Animal - This project is used to provide Year 7 students starting in September with the core skills that will be needed in design & technology. Students will develop understanding of: basic expectations within design & technology, the design process, how to generate & develop ideas from a mood board, basic drawing skills, workshop health & safety expectations and accuracy with manufacturing techniques.	Themed Memo Board - This SoL looks to cement pupils understanding of design & technology, focus will be given to all areas of design & technology in view of making supportive progress towards future units. Pupils will produce thorough research, well annotated design ideas and evaluation techniques. Furthermore pupils in practical lessons will be introduced to different materials and manufacturing techniques. The aim is to treat this project as a first step towards making a quality prototype reflecting a student's own design choices.		Memphis Coat Hook - To introduce the overarching subject outcomes of the engineering design focus further engineering techniques and materials are introduced by development of a ferrous metal, cold formed coat hook. Students are expected to apply accurate marking and measuring skills to both the design idea for an MDF back board, whilst not deviating from a given specification, with a 1980s inspired Memphis style; they are they expected to further develop measuring, marking, cutting, shaping, drilling and surface finishing skills by producing their steel hook. Increased risk is introduced through material and tool choices to further heighten health & safety awareness.		Diverse Superhero Torch - To introduce students to the use of electronic systems and components a simple circuit is analysed and produced to form part of a torch product aimed at younger children. Students consider development of products that are aimed at, as well as being safe and appropriate for their intended user. Soldering is introduced to commercial methods of circuit production using printed circuit boards. An introduction to CAD takes place at this point, so that students can produce a design element vinyl stickers cut using a STIKA CAM machine.
8	Iconic Charity Money Box - In order to develop a understanding of the applications of design in wider society students are asked to design and prototype a charity collection money box that can be used to encourage support for a chosen local or national charity. The aim of this project is to build on the existing skills pupils have obtained during Year 7 but more of a focus being put on them being independent with material and equipment selection. This project follows the traditional design process with pupils being encouraged to trial and error through model making. Pupils must be allowed to learn from their mistakes so card modelling is a key part of this project.			Tea Light Holder - To develop engineering skills students are asked to use a range of industrial based processes to work with steel stock pieces. Students are asked to develop a tea-light holder which is aimed at a specific market, and produce an outcome as an antithesis to the working techniques and materials they are using (safe-dangerous, clean-dirty, rough-smooth, dull-bright etc.) Methods of production are dependent on access to engineering tools, equipment and machinery at BUH, but include marking out using engineer's blue, scriber & centre punch, safely sawing and filing, bossing using a mallet and stump is desirable.		
	Pop-up Book			Emoji Clock - Emoji Clock - To more fully develop skills in producing accurate 2d CAD drawings in preparation for CAM using the laser cutter and vinyl sticker cutter students fully develop a clock using plastics in the style of a customised emoji. Further depth of plastics processes and types (thermo / thermo-set) a hand produced stand is made and thermo-		

			formed using a line bender. Assembly of all custom and proprietary components takes place in order to implement a rigidly defined plan of making.	
9	Bradford Manufacturing Weeks / Big Bang Competition Live Briefs - Students are set an annual live brief as part of the annual Bradford Manufacturing Weeks event. Students are asked to produce a competition entry focussing on their design idea, development and modelling.	Mood Light - Mood Light - To build student's capability of production of electronic systems a reactive circuit containing a colour changing LED is built and housed in a themed mixed material casing. 2d CAD skills are applied to the casing front which has been developed by students, where they are given an opportunity to apply their own choice of appropriate theming and styling. A differentiated wooden casing in built by students using a wooden jointing technique that is suitable for their assessed numeracy skills and tool control ability.		Soma Cube – Working with accurate marking and cutting skills students will develop their own 3dimensional puzzle using sustaibale softwood as a key material.
		Architectural Design CAD – Students will develop a design proposal, using sketching, 2d and 3d CAD for a new sustainably designed home, located in the local area, using the local council's planning strategy for guidance.	Street Food Packaging – considering a range of dishes that have been developed and cooked during food technology lessons students will propose a range of packaging ideas to suit their food products. Appealing to a specific target market to help develop a suitable brand students will use CAD to create a final outcome for their range of packaging.	
10	Clock Intro Project – Consolidation of core graphics and modelling skills from KS3. Finger jointed box developed using MDF, high quality surface finish with simple CAD graphics designed and applied.	R039 – Communicating designs - In this unit students will learn how to develop your techniques in sketching, and gain industrial skills in engineering drawing using standard conventions that include dimensioning, line types, abbreviations, and representation of mechanical features. They will enhance their confidence and capabilities by using computer aided design (CAD), 2D and 3D software, to produce accurate and detailed drawings and models that visually communicate their designs.	R040 – Design, evaluation and modelling - In this unit students will learn how designers can quickly create and test models to develop a prototype of a design. They will develop your virtual modelling skills using computer aided design (CAD) 3D software, to produce a high-quality model that will be able to simulate their design prototype. They will also develop their physical modelling skills using modelling materials or rapidprototyping processes to produce a physical prototype.	
11	R040 – Design, evaluation and modelling	R038 - Principles of engineering design - In this unit students will learn about the different design strategies and where they are used, as well as the stages that are involved in iterative design, which is currently one of the most widely used design strategies. They will learn about the type of information needed to develop a design brief and specification, and the manufacturing and other considerations that can influence a design. They will develop knowledge of the types of drawing used in engineering to communicate designs, as well as the techniques used to evaluate design ideas and outcomes, including modelling methods.		