DT / Engineering

Skipton Girls' High School

Year	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
7	**Yr 7 – Innovate and Create** *The theme for year 7 DT is innovate and create. Designed to engage and inspire our students We aim to give them a full breadth of experience including hand-crafting skills, CAD and CAM knowledge and creativity, knowledge and practical application of circuitry and the programming that sits behind it, isometric sketching, working with real world clients, presentation and communication skills and the ability to evaluate and iterate throughout the design and development process.* **Unit 1** **Smart Backpack Design**	**Unit 1** **Smart Backpack Design continued...** Graphics based project – design brief, market research, mood board, isometric sketching, communication and design skills, product marking. The creation of a brand, logo and tv advert/social media campaign.	**Unit 2 – The Woodlands Trust Project** Brief to design and make a product that can be sold in the woodland trust gift/national trust shops. Students will be given a limited sheet of plywood. The design brief will be to make a product that can be sold in an outlet for The Woodlands trust or National Trust under the price of 10 pounds. Students will go on a design journey to research the current market, develop ideas in an iterative approach, produce initial sketches and a model from cardboard.	**Unit 2 – The Woodlands Trust Project continued...** They will then learn 2D design in order to create and manufacture the product. Following this they will also need to embark on assembling and finishing skills before concluding their project through a thorough and reflective evaluation process including teacher and peer review. .	**Unit 3 – Crazy Critters** Skills based product. The design brief is to research, design and create a toy aimed at gender neutral age 3-8. The students will conduct market research, develop initial sketches using their graphics skills gained from previous units and enhance with rendering. They will then learn basic circuit theory, including the use and application of resistors, capacitors, transistors, LED and power connectives.	**Unit 3 – Crazy Critters...continued** They will then go one to create their working circuits using circuit building skills (soldering), programming (circuit wizard), materials (acrylic), hand shaping (saw, filing), assembling, testing and evaluating. Students will also be using sublimation techniques to add design to their acrylic, casting pewter to aid movement, and 2D design and laser cutting.
8	**Yr 8 overriding theme for the year is Engineering for Humanity**	**Unit 1** **Money Box continued...**	**Unit 2** **Sustainable future -Mechanics and Programming**	**Unit 2** **Sustainable future -Mechanics and Programming continued..**	**Unit 3** **Big Ideas - Transportable Shelter for the homeless**	**Unit 3** **Big Ideas - Transportable Shelter for the homeless**

DT / Engineering

Skipton Girls' High School

	Unit 1 **Money Box** Students will work on individual Money Box projects. Money box designs will include movement and motions using a selection of linkages and levels and cams and followers. Students will introduce to the theory and applications of mechanisms. Students will then embark on the research and design development process, including isometric sketching, rendering and annotations to explain and aid development. This will lead to card model building for prototypes.	Students will develop their 2d Design skills to create the casing for their money box along with the mechanisms, gears, linkages, levers and other chosen design features. These will be created and assembled, evaluated and reviewed.	Micro:bit Ringbit Cars. Makecode and Python programming. Design and build a robotics course to explore physical computing. Design, adapt and code a robot to solve a series of group designed challenges. The scheme will focus around building a sustainable future, taking into consideration the impact of logistics.	Students will devise a more sustainable method to transport parcels. They then build a robotics model to represent their idea and code their microbit to use in their final presentations	Crisis UK Link Students will understand how a new product is developed and brought to market The client brief is to design a portable homeless shelter that can offer people security, warmth and comfort. Students will research, design, refine, model and present their bespoke design for a homeless shelter.	Students will develop their graphics skills and 3D modelling to build a prototype model and professional presentation.
9	**Rotation 1 – Sustainable Architecture** Students will be embarking on a journey with sustainable architecture. They will be given a client brief to design and model sustainable toilets for Aireville Park.	**Rotation 2** **SOLIDWORKS** SOLIDWORKS is an industry standard 3D CAD package. Students will be taught to model simple components				

DT / Engineering

	The students will learn how to produce initial sketches, accurate dimensions, bubble diagrams, plans and elevations, 3D modelling and architectural models	Students will be taught how to assembly components Students will be taught how to generate Engineering Drawings from their 3D parts. These skills will be developed in line with industrial experts to show students how these skills are used in the real world engineering.				
10	**AQA GCSE Engineering (8852):** **Engineering Materials** Material Properties Materials Classification Materials Cost & Supply Energy Production Methods **Engineering Systems** Describing Systems Mechanical Systems Electrical & Electronic Systems	**AQA GCSE Engineering (8852):** **Engineering Materials** Material Properties Materials Classification Materials Cost & Supply Energy Production Methods **Engineering Systems** Describing Systems Mechanical Systems Electrical & Electronic Systems	**AQA GCSE Engineering (8852):** **Engineering Materials** Material Properties Materials Classification Materials Cost & Supply Energy Production Methods **Engineering Systems** Describing Systems Mechanical Systems Electrical & Electronic Systems	**AQA GCSE Engineering (8852):** **Engineering Processes** Additive Manufacturing Material Removal Shaping & Forming Casting & Moulding **Audio Project** Student will design and make a Bluetooth Audio Project in preparation for their NEA	**AQA GCSE Engineering (8852):** **Engineering Processes** Additive Manufacturing Material Removal Shaping & Forming Casting & Moulding **Audio Project** Student will design and make a Bluetooth Audio Project in preparation for their NEA	**AQA GCSE Engineering (8852):** **Engineering Processes** Additive Manufacturing Material Removal Shaping & Forming Casting & Moulding **Controlled Assessment** Students will begin work on their NEA. The brief is determined by the exam board.
11	**AQA GCSE Engineering (8852):** **Engineering Processes**	**AQA GCSE Engineering (8852):** **Testing & Calculations**	**AQA GCSE Engineering (8852):** **Testing & Calculations**	**AQA GCSE Engineering (8852):** **Impact of Engineering**	**AQA GCSE Engineering (8852):** **Exam Preparation &**	**AQA GCSE Engineering (8852):** **Exam Preparation &**

DT / Engineering

Skipton Girls' High School

	Additive Manufacturing Material Removal Shaping & Forming Casting & Moulding **Controlled Assessment** Students will begin work on their NEA. The brief is determined by the exam board.	Using calculations Modelling & Calculating Testing **Controlled Assessment** Students will begin work on their NEA. The brief is determined by the exam board.	Using calculations Modelling & Calculating Testing **Controlled Assessment** Students will begin work on their NEA. The brief is determined by the exam board.	The use of new and emerging technologies The impact of Engineering industries. **Controlled Assessment** Students will begin work on their NEA. The brief is determined by the exam board.	**Revision**	**Revision**