



KS4 DT Curriculum Mapping

Engineering						
Term	Autumn (1)	Autumn (2)	Spring (1)	Spring (2)	Summer (1)	Summer (2)
Topic(s)/ Subjects(s)	Aluminum Hammer project & workshop health and safety	Engineering design unit- Coursework	Analysis unit-coursework	Exam theory- Course unit	Manufacturing unit	Exam revision
Knowledge and skills (Content)	Workshop health and safety. Understanding of how all the workshop machines work. Metals theory including ferrous and none ferrous metals. Fire safety- Organisation fire regulations. PPE equipment uses and limitations for different environments. Coshh regulations. Health and safety at work act 1974. Understanding working drawings. Understanding how to produce risk assessments and manufacturing plans.	Be able to generate design proposals using a range of techniques. Know how to develop designs using engineering drawing techniques and annotation. Be able to use Computer Aided Design (CAD) software and techniques to produce and communicate design proposals.	Know how commercial production methods, quality and legislation impact on the design of products and components. Be able to research existing products. Be able to analyse an existing product through disassembly. On completion of this unit, learners will understand how to perform effective product analysis and evaluation through research and product assembly and disassembly procedures to appreciate product design features.	Understand the design cycle and the relationship between design briefs and design specifications. Understand the requirements of design specifications for the development of a new product. Know about the wider influences on the design of new products.	Know how to plan the making of a prototype. Understand safe working practices used when making a prototype. Be able to produce a prototype. Be able to evaluate the success of a prototype.	Understand the design cycle and the relationship between design briefs and design specifications. Understand the requirements of design specifications for the development of a new product. Know about the wider influences on the design of new products.
Assessment	This unit is internally assessed and used as an introduction to the course to allow students to work in a safe and secure environment.	This unit is a physical portfolio. Marked internally and moderated externally. The unit is weighted at 25% of the GCSE.	This unit is produced as a e-portfolio. Marked internally and moderated externally. The unit is weighted at 25% of the GCSE.	Assessed through an externally set written examination paper, worth a maximum of 60 marks and 1 hour in duration.	The center-assessed task: • will be practical tasks in the context of an assignment, selected from the OCR bank of set assignments. Moderated externally. Weighting of 25% of the GCSE	Assessed through an externally set written examination paper, worth a maximum of 60 marks and 1 hour in duration.
Cross Curricular Links	Links with science and industry protocols.	Links with Art, Math's and IT.	Links with geography, Math's and IT	Links with Math's, English, science and geography.	Links with Science and Math's.	Links with Math's, English, science and geography.
SMSC, British Values, Cultural Capital	British standards/values taught through a engineering/workshop environment.	N/A	Understanding culture/clients/stake holders.	This unit covers a lot of environmental issues and green design.	N/A	This unit covers a lot of environmental issues and green design.

CEIAG	Progression from these qualifications: Apprenticeship e.g Design and Development Technician Cambridge Technicals Engineering (Levels 2 and 3) T Level Design and Development for Engineering and Manufacturing (Level 3) A Level Design and Technology (Level 3)					
Learning outside the classroom	Students have several home works based on research and how companies operate safely.	Students have to research ideas and investigate the design brief.	Students research existing products. Students learn about industrial processes through product disassembly.	Students use all Resources available to them to revise, including teams.	N/A	Students use all Resources available to them to revise, including teams. Completing past papers.
Additional Subject Specific Information	This unit also cover packaging and forming batch production Moulds.	The schools health and safety office gives a talk which explains the schools fire/safety policy.	The design brief is set externally.	Students can take this exam in Jan and retake in the summer.	Products need to be manufactured from a engineering drawing.	After school clubs available for anyone on the risk register.

Food Technology						
Term	Autumn (1)	Autumn (2)	Spring (1)	Spring (2)	Summer (1)	Summer (2)
Topic(s)/ Subjects(s)	Food, nutrition and health: Food choice Practical Food Skills		Food Science: Practical Food Skills		Food Science: Working to an example exam brief NEA 1. Revision	
Knowledge and skills (Content)	<p>Food, nutrition and health: sugars, starches and fibre, HBV and LBV proteins, protein complementation, saturated, monounsaturated and polyunsaturated fats, fat soluble and water-soluble vitamins</p> <p>Food choice Factors which influence food choice – cost/ religious, cultural and ethical reasons Food labelling and marketing influences British food choices International cuisine/Culinary traditions</p> <p>Food Skills General practical skills/knife skills/preparing fruit and vegetables/use of cooker/cooking and equipment/sauces/dough/raising agents</p> <p>Students will demonstrate effective and safe high-level cooking skills by planning, preparing dishes using a variety of cooking techniques and equipment. Students will understand the relationship between diet, nutrition and health, including the physiological and psychological effects of different diets and health.</p>	<p>Environmental issues associated with food: Continued Explain how each environmental issue may influence food choice, including: seasonal foods/ sustainable methods of farming / transportation of food and food miles / organic food / local produce / packaging / carbon footprint / food wastage How ingredients are grown, reared and caught, including: free range/ genetically modified Explain the food security</p> <p>Food safety: Continued Micro-organisms: yeasts, molds, bacteria and their growth conditions/enzymes in food spoilage/ enzymic browning/control the different types of food poisoning bacteria/symptoms of food poisoning</p> <p>NEA Task 1: Food Investigation - Analyse the task / Practical experiments and investigations / Analyse and interpret results of the investigative work / Evaluate hypothesis with justification</p>	<p>Food Science: Why food is cooked and how heat is transferred to food, Selecting appropriate cooking methods</p> <p>British food choice International cuisine/Culinary traditions continued</p> <p>Food Skills General practical skills/knife skills/preparing fruit and vegetables/use of cooker/cooking and equipment/sauces/dough/raising agents</p> <p>Students will demonstrate effective and safe high-level cooking skills by planning, preparing dishes using a variety of cooking techniques and equipment. Students will develop knowledge and understanding of the functional properties, chemical processes and nutritional content of foods. Students will understand the</p>	<p>NEA Task 2: Food Preparation Assessment - Researching the task / Demonstrating technical skills / Planning for the final menu / Analysis and evaluation</p> <p>Food Skills General practical skills/knife skills/preparing fruit and vegetables/use of cooker/cooking and equipment/sauces/dough/raising agents/setting mixtures</p>	<p>Food Science: Caramelisation/dextrinization/ gelatinisation gluten formation/denaturation/coagulation/shortening/aeration/creaming/emulsification/chemical/biological/mechanical raising agents</p> <p>Sensory evaluation Investigation - Analyse the task / Practical experiments and investigations / Analyse and interpret results of the investigative work / Evaluate hypothesis with justification</p> <p>Students will demonstrate effective and safe high-level cooking skills by planning, preparing dishes using a variety of cooking techniques and equipment. Students will develop knowledge and understanding of the functional properties, chemical processes and nutritional content of foods. Students will understand the relationship between diet, nutrition and health, including the physiological and psychological effects of different diets and health.</p>	<p>Revisions: Tasks and recap of theory topics. For the written Exam paper : Written exam: 1 hour 45 minutes</p>

			relationship between diet, nutrition and health, including the physiological and psychological effects of different diets and health.			
Assessment	Practical work is internally assessed. Theory is building a portfolio and used as an introduction to the course. This is also internally assessed.	<i>NEA Task 1: Food Investigation - Analyse the task / Practical experiments. Internal Assessment in line with the grade boundaries from Educas.</i>	Practical work is internally assessed. Theory is a portfolio. This is internally assessed.	<i>NEA Task 2: Food Preparation Assessment - Internal Assessment in line with the grade boundaries from Educas.</i>	<i>Mock NEA Task 1: Mock Exam: Written exam: 1 hour 45 minutes Assessment in line with the grade boundaries from Educas</i>	External marked by Educas.
Cross Curricular Links	<p>English: Descriptive adjectives of sensory analysis and evaluation</p> <p>Maths: Measurement Ratio/Fractions/star diagrams</p> <p>Geography: Foods are grown and harvested</p> <p>PE: Eatwell Guide and Diets Macronutrients Micronutrients</p> <p>Art and Design: Presentation and decoration</p>	<p>Science: Functional and chemical properties of <i>carbohydrates, proteins, fats, oils, acids, alkalis, enzymes, heat transfer</i></p> <p>English: descriptive adjectives of sensory analysis and evaluation</p> <p>Maths: Measurement Ratio/Fractions</p>	<p>Science: Functional and chemical properties of <i>carbohydrates, proteins, fats, oils, acids, alkalis, enzymes, heat transfer</i></p> <p>English: descriptive adjectives of sensory analysis and evaluation</p> <p>Maths: Measurement Ratio/Fractions</p> <p>Art and Design: Presentation and decoration</p>	<p>Science: Functional and chemical properties of <i>carbohydrates, proteins, fats, oils, acids, alkalis, enzymes, heat transfer</i></p> <p>English: descriptive adjectives of sensory analysis and evaluation</p> <p>Maths: Measurement Ratio/Fractions</p> <p>Art and Design: Presentation and decoration</p>	<p>Science: Functional and chemical properties of <i>carbohydrates, proteins, fats, oils, acids, alkalis, enzymes, heat transfer</i></p> <p>English: descriptive adjectives of sensory analysis and evaluation</p> <p>Maths: Measurement Ratio/Fractions</p> <p>Geography: Foods are grown and harvested</p> <p>PE: Eatwell Guide and Diets Macronutrients Micronutrients</p> <p>Art and Design: Presentation and decoration</p>	
SMSC, British Values, Cultural Capital	Students studying KS4 Food look at recipes and ingredients from other cultures and explore creating menus and making dishes inspired by what they have found out. Students must consider cultural differences of the products. This also covers a lot of environmental issues.		Students studying KS4 Food look at recipes and ingredients from other cultures and explore creating menus and making dishes inspired by what they have found out. Students must consider cultural differences of the products.	As part of the examination board course content students are to explore the social, moral, cultural, and environmental values and evaluate constructively evaluate their own products		As part of the examination board course content students are to explore the social, moral, cultural, and environmental values and evaluate constructively evaluate their own products
CEIAG	Progression from these qualifications: Apprenticeship in the Food	<ul style="list-style-type: none"> • Food technologist. • Chef • Restaurant Manger 				



	industry/ Hospitality industry Degree courses related to Food Science and Nutrition.	<ul style="list-style-type: none"> • Nutritional therapist. • Product/process development scientist. • Quality manager. • Regulatory affairs officer. • Scientific laboratory technician. • Technical brewer. 				
Learning outside the classroom	Students have several home works based on Food, nutrition, health, and Food choice	N/A	Students have several home works based on Time planning and evaluation.	N/A	Students use all Resorces available to them to revise, including teams.	Students use all Resorces available to them to revise, including teams.
Additional Subject Specific Information		Individual work. This must be pupil led not teacher. How to understand and the Interruption of an exam brief		Individual work. This must be pupil led not teacher.	How to understand and the Interruption of an exam brief	Individual work. This must be pupil led not teacher.

Design and Technology GCSE						
Term	Autumn (1)	Winter (2)	Spring (1)	Spring (2)	Summer (1)	Summer (2)
Topic(s)/ Subjects(s)	Transitional forms	Lamp project	Pewter casting	NEA Start	NEA continuation	Completion of NEA
Knowledge and skills (Content)	<p>Chapter 4 – Design thinking and communication.</p> <p>Chapter 1 – Identifying requirements.</p> <p>Chapter 3 – Implications of wider issues. Mini Project – Iterative design-based project.</p> <p>NEA Project:</p> <ul style="list-style-type: none"> • Investigations of user and stakeholder needs and wants. • Design brief. • Investigating existing products. • Generation of initial ideas. • Design developments – iterative process. 	<ul style="list-style-type: none"> • Chapter 9 – Timbers. • Chapter 2 – Learning from existing products and practice. <p>Electronics</p> <p>Project – Timber based mock NEA.</p> <p>November Mock Exam Preparation:</p> <ul style="list-style-type: none"> • Recap and revision of in depth and core knowledge topics. • Past papers and exam based skills. <p>NEA Project:</p> <ul style="list-style-type: none"> • Exploration of materials. • Development of final design 	<ul style="list-style-type: none"> • Chapter 8 – Metals • Chapter 5 – Material considerations. <p>Project – Metal based mock</p> <p>NEA continued. Mini Project – Design and make, based on design movements.</p> <p>NEA Project:</p> <ul style="list-style-type: none"> • Technical specification. • Planning for final prototype. • Manufacturing final prototype. 	<ul style="list-style-type: none"> • CAD/CAM. • Chapter 6 – Mechanical devices and electronic systems. <p>Project – Timber based mock NEA continued.</p> <p>Mini Project – Based on the use of CAD/CAM.</p> <p>Completion of NEA Project:</p> <ul style="list-style-type: none"> • Manufacturing final prototype. • Testing and evaluating final prototype. <p>March Mock Exam Preparation:</p> <ul style="list-style-type: none"> • Recap and revision of in-depth and core knowledge topics. • Past papers and exam based skills. 	<ul style="list-style-type: none"> • CAD/CAM. • Chapter 7 – New and emerging technologies. <p>Mini Project – Based on the use of CAD/CAM continued.</p> <p>Final Exam Preparation:</p> <ul style="list-style-type: none"> • Recap and revision of in-depth and core knowledge topics. 	<p>NEA Project (50% final grade):</p> <ul style="list-style-type: none"> • Investigations of the context. • Investigations of user and stakeholder needs and wants. • Design brief. • Investigating existing products. <p>Final Exam</p>
Assessment	This unit is internally assessed and used as an introduction to the course to allow students to work in a safe and secure environment.	<p>This unit is internally assessed and used as an introduction to the course to allow students to work in a safe and secure environment.</p> <p>Exam is hand marked by teacher and marks placed into a spreadsheet. Used for evidence if needed if exams are cancelled.</p>	This unit is internally assessed and used as an introduction to the course to allow students to work in a safe and secure environment.	The NEA is produced as a e-portfolio or folder. Marked internally and moderated internally initially before work being sent off externally. The unit is weighted at 50% of the GCSE.	The NEA is produced as a e-portfolio or folder. Marked internally and moderated internally initially before work being sent off externally. The unit is weighted at 50% of the GCSE.	<p>The NEA is produced as a e-portfolio or folder. Marked internally and moderated internally initially before work being sent off externally. The unit is weighted at 50% of the GCSE.</p> <p>Exam marked externally- 50% of the coursework</p>
Cross Curricular Links	Links with Maths, English, science and ICT	Links with Maths, English, science and ICT	Links with Maths, English, science and ICT	Links with Maths, English, science and ICT	Links with Maths, English, science and ICT	Links with Maths, English, science and ICT
SMSC, British Values, Cultural Capital	<p>British standards/values taught through a engineering/workshop environment.</p> <p>Understanding culture/clients/stake holders.</p>	Understanding different cultures and the design styles that are produced.	This unit covers a lot of environmental issues and green design.	British standards/values taught through a engineering/workshop environment.	This unit covers a lot of environmental issues and green design.	This unit covers a lot of environmental issues and green design.
CEIAG	Progression from these qualifications:	<p>Jobs from a degree route</p> <ul style="list-style-type: none"> • CAD technician • Clothing/textile 		London trip to look at design museum to see real work progression in design.		

	<p>Apprenticeship e.g Design and Development Technician</p> <p>A Level Design and Technology (Level 3)</p>	<p>technologist</p> <ul style="list-style-type: none"> • Colour technologist • Exhibition designer • Furniture designer • Interior and spatial designer • Product designer <p>Jobs where your degree would be useful include:</p> <ul style="list-style-type: none"> • Advertising art director • Automotive engineer • Furniture conservator/restorer • Graphic designer • Materials engineer • Procurement manager • Product manager • Production designer, theatre/television/film • Stylist 				
<p>Learning outside the classroom</p>	<p>Students are expected to have an interest and drive in the subject so should be actively researching different products and designs to help build their knowledge, understanding and wisdom into the design world</p> <p>Students have several home works based on research</p>	<p>Students are expected to have an interest and drive in the subject so should be actively researching different products and designs to help build their knowledge, understanding and wisdom into the design world</p> <p>Revision into all theory completed to aid in their mock test</p>	<p>Students are expected to have an interest and drive in the subject so should be actively researching different products and designs to help build their knowledge, understanding and wisdom into the design world</p> <p>Use of teams to compile all theory tasks to aid in revision</p>	<p>Students are expected to have an interest and drive in the subject so should be actively researching different products and designs to help build their knowledge, understanding and wisdom into the design world</p> <p>Use of teams to compile all theory tasks to aid in revision</p>	<p>Students are expected to have an interest and drive in the subject so should be actively researching different products and designs to help build their knowledge, understanding and wisdom into the design world</p> <p>Use of teams to compile all theory tasks to aid in revision</p>	<p>Students are expected to have an interest and drive in the subject so should be actively researching different products and designs to help build their knowledge, understanding and wisdom into the design world</p> <p>Revision into all theory completed to aid in their mock test</p>
<p>Additional Subject Specific Information</p>	<p>Delving into understanding the designers mind.</p> <p>Clear layout of work pages and organization of theory folders</p>	<p>Introduction into electronics and circuits – basic layouts</p>	<p>The design brief is set externally.</p>	<p>Individual work. This must be pupil led not teacher.</p>	<p>Working prototype produced, however this can be done in sections.</p>	<p>After school clubs available for anyone on the risk register.</p>