

# Curriculum Overview Template – D and I

	Focus	Rotation 1 Food Tech	Rotation 2 Laser tidy	Rotation 3 Hanoi Towers	Rotation 4 Metal Monster	Rotation 5 Presentation techniques
<b>Year 7</b>	<b>Topic</b>	Intro to Food	CAD/CAM	Timbers	Metals	Graphics
	<b>Key concepts/ideas</b>	Health and Safety How to use the oven safely Weighing and Measuring Introduction to design in food. Basic nutrition e.g., 5 a day Basic understanding of Tools and equipment.	Industrial manufacturing Computer Aided Design Computer Aided Manufacturing Plastics Laser Cutting Heat forming	Use of timbers joining methods. Marking out with accuracy. Forms of timber and sustainability. Introduction to tools	Introduction to steel and forms of supply. Introduction and use of tools not found in woodwork based workshop. Design and make of metal/polymer monster	Introduction to graphical presentation, application of product surface finishes and drawing using concept of perspective.
	<b>Key skills</b>	Embed rules and routines in the food room Develop basic skills and fine motor skills. Develop independence and time management Weighing and measuring (Cross curricular numeracy links) Develop knowledge of health and safety Learn how to follow a recipe independently. Importance of 5 a day and how they can incorporate it into their diet. <b>Practical lessons:</b> Apple crumble (Chopping, rubbing in method) Fruit Salad (Knife skills) Pizza Swirls (Rubbing in method, rolling out, grating chopping, baking) Potato Wedges & Dip (Knife skills) Mars bar crunch (Hob work, chopping) Savoury Muffins – Design activity (Reducing sugar) Chicken Nuggets (handling raw meat, breading oven) Jam Roly Poly (Rubbing in, baking) Puff pastry Tarts (Chopping, working with pastry)	Foundations on creating CAD files in the software 2D Design. Advancing CAD skill to create a marketable design. Plastics properties and working characteristics. Advantages and disadvantages to using CAD/CAM. Laser cutting, how it works and why we use it. Industrial uses of lasers. Health and safety of laser cutting. Heat treatment to transform a sheet of plastic into a 3D marketable product. Saving files onto external drives. Setting up the laser. Creating card models to understand their design in 3D. The advantages to modelling designs.	Measuring, marking out, cutting, chiseling, drilling blind, through and interference fit holes. Finishing techniques-abrasives and surface finishes – sanding seal and stains. Finding the centre using marking gauges. . Finding the centre of a square without measuring. Use of templates for repeated marking out. Use of gauges to check quality of pieces. Properties of timber and classifications – environmental issues with timber and sustainability	Measuring, marking out, cutting, pillar drilling and the application of taps and dies to make a fastening system.	Production of accurate, detailed drawings using 2 point perspective, application of shade or materials to surfaces of 3D objects to make them look lifelike. Drawing in 2 point perspective by producing my own horizon and vanishing points.  Logo design and company graphical presentation.
	<b>Key terms/vocab</b>	Hob, Enzymic Browning, Oven, Bridge Method, Baking, Portioning, Bacteria, Al Dente.	Laser cutting. Accuracy. Quality. Plastics. 2D Design. Software. Vector. Bitmap. Intersect. Complexity. Marketable. Function. Aesthetics. Prototypes. Model	Waste, hardwoods, softwoods, deciduous, coniferous, evergreen, tools, interference fit, blind hole, template, consistency	Low carbon steel, trueness, dimensions, safe workshop practice, thread systems, male & female threads, taps & dies, accuracy, efficiency, patience.	Rendering, Light source, Perspective, Vanishing point, horizon.
	<b>Independent learning / wider reading</b>	Market research. Understanding the conventions of a recipe Research techniques.	Market research. Industrial manufacturing videos – laser cutting.	Time management, accuracy. How timber can be managed to ensure that it is sustainable. Uses of timber in the home.		Company logo research and graphical presentation of company identity.
<b>Assessment</b>	End of unit test. Student setting individual targets	End of unit test. Student setting individual targets	End of unit test. Student setting individual targets	End of unit test. Student setting individual targets	End of unit test. Student setting individual targets	

	<b>Careers links</b>		Design. Industrial manufacturing. Advertising. CAD/CAM. 3D modelling.	Joinery, forestry,	Engineering. Manufacturing.	Graphic designer, Product design.
--	----------------------	--	-----------------------------------------------------------------------	--------------------	-----------------------------	-----------------------------------

	<b>Focus</b>	<b>Rotation 1 Food Tech</b>	<b>Rotation 2 Electronics</b>	<b>Rotation 3 RM</b>	<b>Rotation 4 RM</b>	<b>Rotation 5 RM</b>
<b>Year 8</b>	<b>Topic</b>	World foods	Night light	Bug Hotel	Bottle opener	Iconic toy
	<b>Key concepts/ideas</b>	Recap on health and safety & oven safety. Introducing some more challenging concepts of 4C's/Food poisoning. Understanding what happens to bacteria at each stage - especially as students are handling more raw meat in this rotation. Building on the skills gained in year 7. Increasing the skill level of practical dishes. Food from around the world is the theme.	Vacuum forming including health and safety and industrial uses. Introduction to electronics, key components and PCB's. Introduction into soldering, techniques and health and safety. Advanced laser cutting for the decorative part of the night light. Fault finding in electronics.	Environmental awareness, creative design, working to a specification to produce a product. Developing ideas rather than working from a preconceived idea. Adapting ideas to increase the suitability	Continuation of exposure to the practice of working with steel and timber materials. Further use of tools and equipment for metal work together with use of woodwork tools. Knowledge of ferrous and non-ferrous metals. Concept of forces and leverage	Design history of the Land Rover 'Defender' vehicle. Initial quality manufacture to template profile of a wooden body. Creative expression to develop and make their own version of this British icon.
	<b>Key skills</b>	Students understand that traditional foods from around the world are influenced by climate, weather & geography, history, and religion. They can follow more complex recipes and continue to build skills. They understand the concept of the Eatwell guide. <b>Secure:</b> Cauliflower & broccoli cheese or pasta bake (boiling, roux sauce, baking) Fajitas (Chopping, handling raw meat, hob work) Chilli con carne or Bolognese (Chopping, hob work) Cheesecake (Hob work, whisking) Brownies (Bain Marie, baking) Jam tarts (Baking, rubbing in, pastry making skills) Toad in the hole (Batter, baking, handling raw meat) Pizza (Making dough, grating, baking) Vegetable soup (Chopping, dicing, peeling, hob work & Blending) Oat cookies (Melting Method, baking)	Soldering technique, practise and safety. Understanding the characteristics of the material and when a joint is soldered correctly. Ability to identify components and explain their purpose within a circuit. Identify polarity in components. Understand; be able to explain and conduct work on the vacuum former successfully. Advanced laser cutting.	Making out, solving problems, developing ideas as part of a team. Marking out complex shapes, combining materials. Finishing techniques. Producing commercially viable products. Evaluation of final product	Selection and use of metal and woodwork tools independently. Aim to complete bottle opener product to a commercial standard finish on all materials including metals, timbers and plastics demonstrating a very high level of accuracy and precision. Understand the different types of force and their application. Understand the 3 types of lever, their application and ability to identify lever classes in everyday products.	Using a range of hand tools and equipment to a foundation level when working with softwoods.
	<b>Key terms/vocab</b>	4C's Eatwell guide Bain Marie Consistency Kneading Diced Whisking Roux Melting Shortcrust pastry Batter	Soldering. Electronics. Dry joints. Laser. Printed Circuit Board. Resistance. Ohm. Draft angle. Vacuum. Mould. Elasticity. Transistor. Light Emitting Diode. Phototransistor. Testing. Polarity. Sensor.	Pollinators, habitat, green issues, tools, lap joint	Template, Handtool, File, Ball pein hammer, Scribe, Centre punch, Lever, Force, Ferrous, Non-Ferrous.	Template, patience, tolerance, waste, technique, commercial quality, Quality Control (Q.C.), engineering composites. HASAWA

<b>Independent learning / wider reading</b>	Country research (students choose a country to research) Reading recipes independently.	Industrial manufacturing – vacuum forming research and videos. Market research of existing products		Existing product research and analysis, Levers in the household	Land Rover company and worldwide impact the vehicle still has today in International markets for a lifestyle product.
<b>Assessment</b>	TA and student setting targets	TA and student setting targets	TA and student setting targets	TA and student setting targets	TA and student setting targets
<b>Careers links</b>	Hospitality industry	Design. Industrial manufacturing. Electronics. Engineering.	Designing products, agriculture, joinery	Engineering. Manufacturing.	Graphic Design

	Focus	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
<b>Year 9 Food</b>	<b>Topic</b>	Food Hygiene	Methods of Heat transfer	Nutrition	International Cuisine	Sustainability	Sustainability (Continued)
	<b>Key concepts/ideas</b>	Introduction to health, food hygiene and safety looking at the 4C's, Food storage, Food Spoilage, and key temperatures.	Food science and cooking methods. Understanding how ingredients work and why we use the various methods of heat transfer to produce dishes.	Food and Nutrition looking at what makes up a healthy diet and being able to apply this knowledge to generate meal plans. Knowledge of special diets and factors affecting food choices.	International cuisine. Looking at the factors that influence the cuisine in different countries.	The 3R's/6R's. Sustainability in food	Farm to fork and understanding seasonality within food.
	<b>Key skills</b>	<p><b>Theory Lessons:</b> Students understand the concept of the 4C's and can apply it to real life practical lessons. They understand how to use a temperature probe. They understand that there are different cake making methods.</p> <p><b>Practical lessons:</b> They understand how to apply hygiene and safety to their own practical.</p> <p>A range of practical lessons designed to encourage them to handle high risk foods safely, develop skills &amp; cake making methods &amp; presentation techniques.</p> <p>Hunters chicken chicken curry Meatballs Shepherds pie Scotch Egg Carrot cake muffins. Swiss roll Bakewell tart.</p>	<p><b>Theory Lessons:</b> Understanding methods of heat transfer – how they work. Why we use certain methods for heating certain foods. Understand reasons why we cook foods. Importance of presentation when making foods.</p> <p><b>Practical lessons:</b> Developing technical skills to produce higher skill level dishes. Christmas Themed practical assessment.</p> <p>Sausage rolls Mini quiche Lasagne Welsh rarebit mince pies Chocolate log.</p>	<p><b>Theory Lessons:</b> Understand what the key nutrients are. Understand a range of special diets. Understand how to apply knowledge in order to come up with meal plans to meet a specific brief. Understand the differences between and standard product and one that it for a special diet. Use of sensory descriptors.</p> <p><b>Practical Lessons:</b> Looking at recipes for special diets. Plan and make a meal for a particular brief for the practical assessment.</p> <p>Risotto/Paella, Quorn and sweet potato curry Vegan recipe Cheesy bean burgers. Stir fry Practical assessment</p>	<p><b>Theory Lessons:</b> Understanding different cooking methods. Understand the reasons for some traditional dishes, building on knowledge gained in year 8.</p> <p><b>Practical Lessons:</b> Produce a range of international dishes.</p> <p>Katsu chicken curry Sushi, Tiramisu Choux pastry Tacos fillings and toppings.</p>	<p><b>Theory Lesson:</b> Understand the environmental issues surrounding food and how to reduce the carbon footprint. Understand that making good choices when buying foods can reduce our carbon footprint.</p> <p><b>Practical Lesson:</b> Looking at recipes to help to reduce food waste.</p> <p>Spanish Omelette Potato cakes/bubble and squeak Leftover bread and butter pudding.</p>	<p><b>Theory Lesson:</b> Understanding the different seasons within food and the impact this has on the price of ingredients and flavour and quality of produce. Understand how to plant and grow food.</p> <p><b>Practical Lesson:</b> Planting and maintaining the vegetable patches. Seasonal recipes.</p> <p>Chicken gyros Halloumi and cous cous salad Salads summer fruit tarts, buttermilk cheese scones Biscuit based meringue.</p>

	<b>Key terms/vocab</b>	4C's Temperature probe Food Spoilage Food Preservation Whisking method Rubbing in method All-in-one method Creaming method	Conduction Convection Radiation Heat transfer Boiling Frying Grilling steaming	Carbohydrates Protein Fat Vitamins Minerals Fibre	International Cuisine Terrain Climate Religion History	Food Miles Carbon Footprint Sustainability	Seeds Seasonality Fark to Fork
	<b>Independent learning / wider reading</b>	Becoming familiar with the conventions in recipes. Researching food preservation.	Use of tried and tested style articles to write a repost. Understanding the style of writing. Independent use of recipes.	Researching food that contain specific nutrients in order to fulfil a brief	Research into culture and cuisine	Researching sustainability	Researching and Planning the vegetable plots
	<b>Assessment</b>	Food spoilage/Food preservation poster. Bakewell tart practical.	Food science report. (written). Chocolate log.	Written research to plan a meal for a particular diet. Make the planned dish (practical assessment).	Written assessment: plan a 2-course meal to show case international cuisine. Practical assessment: make one of the planned dishes.	Sustainability poster (group work) Bread and Butter pudding (Skills and creativity using left over ingredients).	Practical assessment – lemon meringue pie
	<b>Careers links</b>	Hospitality industry.	R&D (Research and development).	Nutritionist	Product development Hospitality industry	Environmental/ Conservation	Environmental/ Conservation Agriculture

	Focus	Pop Art Clock	Decorative Box	Night light	Passive amplifier	Sweet dispenser
<b>Year 9 DT</b>	Topic					
	Key concepts/ideas	Using the work of designers to influence the design of a clock. Designing products with the end user in mind	Creating an accurate box, cutting with increased precision, using different types of timber to enhance the desirability of the box	Producing an electronic product. Basic electronic components and use of PCB	The principal of how to increase sound then using this knowledge to make a passive amplifier for a target audience	Looking for innovative ideas that can be used to design and make a sweet dispense. Designing based on prior knowledge
	Key skills	Researching and interpreting ideas. Designing a product to suit a need and work with premade products(clock mechanism)	Combining timbers to achieve an interesting aesthetic product. Building on knowledge gained lower down the KS	Soldering, identifying basic electronic components, the function of basic electronic components, resistor colour code theory	Designing a product that is functional and meets the needs of the user. Designing a product that can integrate with a mobile phone	Planning a project, developing practical realisation skills, working with increased independence. Developing mechanisms to dispensed
	Key terms/vocab	Pop Art, template, experiment	Dry assembly, clamping, gluing up, template, marking gauge, square, accurate, decorative finish	Solder, soldering iron, dry joint, resistor, ohms, photo transistor, LDR, LED, Vacuum forming, capacitor, mould, draft angles	Horn, laminate, target audience, taper	Mechanism, rotate, linear, reciprocate, oscillate
	Independent learning / wider reading	Researching more designers and using this as a stimulus for design activities	Researching materials that can be used. Other joining techniques	Identifying where vacuum forming is used in the real world. Knowledge organiser of components and how to make a PCB	Looking at existing products, designing the PA to suit a number of different mobile phones to increase the target market. Identifying materials that can be upcycled into the PA	Developing mechanisms to dispense sweets effectively
	Assessment	Student target setting	Final evaluation and student set targets			Min GCSE marking scheme used.
	Careers links	Designers	Joinery, designing	Electronic/engineering/product design/	Product designer	Product designer/marketing

	Focus	Unit 1	Unit 2	Unit 3	Unit 4
<b>Year 9 Engineering</b>	Topic	(Aluminium) Wall Tool Bracket	(Steel) Hanging Basket Bracket	Steampunk sculpture(mixed metals)	Rocket stove
	Key concepts/ideas	Interpreting Engineering Information to produce a 3-D outcome from a 2-D drawing to manufacturing and commercial standards.	Design to meet a set brief. Creative expression fabricating a load bearing structure.	Creation of personalised sculptures from recycled metal materials and artifacts such as brass/copper/steel cogs, fasteners.	Design to meet a set brief. Creative expression fabricating a metal structure.
	Key skills	Technical drawing, fabrication and manufacture using both equipment and hand tools. Problem solving.	Joining techniques : MIG welding and Brazing. Working with steel plate and sheet forms of supply.	Power tool use /MIG Welding /Metal Arc welding/ brazing / soldering / Plasma cutting	Joining techniques : MIG welding and electric arc. Working with steel plate and sheet.

	<b>Key terms/vocab</b>	Template, pattern, folding sequence, step drills, improvisation, Annealing, HASAWA.	Template, pattern, folding sequence, step drills, improvisation, Annealing, HASAWA.	PUWER 1998 HASAWA	Template, pattern, grinding, fettling.
	<b>Independent learning / wider reading</b>	Properties of metals when worked. Automotive and aeronautical manufacturing	Architecture /bridges and articulated structures. Welding fabrication	Researching the history of Victorian engineering and famous British engineers.	Existing product research.
	<b>Assessment</b>	Practical outcome + Logbook record of planning, processes and manufacture	Practical outcome + Logbook record of planning, processes and manufacture	Practical outcome + Logbook record of planning, processes and manufacture	Practical outcome + Logbook record of planning, processes and manufacture
	<b>Careers links</b>	Engineering Design + Manufacture	Engineering / blacksmithing / metallurgy	Product design / Fine art & sculpture/ restoration and repair	Engineer, welder, fabricator.

By term

	Focus	Autumn	Spring	Summer
<b>Year 10 Food</b>	<b>Topic</b>	Food Spoilage, Health and Safety and Nutrition.	Methods of heat transfer, Food Provenance and Cultures and cuisines.	Commodities
	<b>Key concepts/ideas</b>	Intro to health and safety. 4C's in more detail The danger zone - looking at key food preparation temperatures Sources and types of food poisoning Food Safety legislation HACCP Food Spoilage/waste Food Packaging  <b>Nutrients -</b> Looking into the various nutrients in more depth to understand sources and functions. These will be linked to the practical activities. Special Diets Religious, Medical and Ethical. Nutritional needs of different groups. Adapting recipes.	Cooking methods Science of cooking Methods of heat transfer Food provenance Cultures and Cuisines Food choices Sensory analysis	<b>Commodities:</b> Cereals Fruit and Vegetables Milk, Cheese and Yoghurt Meat, Fish, Poultry and Eggs Butter and Oil Sugar and Syrup Soya and tofu  Students will complete a mock Food Science practical in preparation for NEA in year 11. They will complete the 2017/2018 task. It will be marked using the NEA mark scheme for task 1. NEA 1 mock
	<b>Key skills</b>	<b>Theory Lessons:</b> They understand the concept of the 4C's and can apply it to real life practical lessons. They understand how to use a temperature probe. They understand that there are different cake making methods. They understand how to apply hygiene and safety to their own practical. Understand what the key nutrients are. To understand key government guidelines for healthy eating. To understand why a balanced diet is important to good health. Understand the health impact of having a diet that isn't balanced. To understand presentation skills.  <b>Practical Lessons:</b>	<b>Theory Lessons:</b> Methods of heat transfer – how they work. Why we use certain methods for heating certain foods. Understand reasons why we cook foods. Importance of presentation when making foods. Developing higher level practical skills needed for NEA. Understanding where food comes from. Understanding the various factors that influence food choices. Knowledge of sensory analysis and how to conduct testing.  <b>Practical Lessons:</b>  Mille Feuille, Burger and chips, Meringue Nests, Curry with homemade paste, rice dish, pancakes, focaccia.	<b>Theory Lesson:</b> Understand what commodities are and where they come from. Understand what products are produced from commodities. Understand how to produce dishes using various commodities. Understand the requirement for NEA task one. Understand how ingredients work in recipes and how changing ingredients alters the result. Understand how to research effectively. Understand how to reflect and analyse results.  <b>Practical lesson:</b> portioning chicken (make Kiev and marinated thighs and legs), Jam, buttermilk scones and homemade butter, Welsh cakes,

	<p><b>Practical Lessons (Link to the theory but are also to develop skills) –</b> Soup and bread rolls (own recipes), Lasagne, Stuffed Vegetables (Own Choice), how to HACCP a sausage roll, Chicken Dish (Own Choice), Pizza (Own choice). Quiche, lemon meringue pie, Fish recipe, Taste testing special diet foods (e.g. gluten free bread, lactose free milk). <b>Seasonal cookery –</b> Viennese fingers, flaky pastry, Christmas cake.</p> <p>Students need to be able to select suitable recipes independently and be able to follow them. Some recipes provided; some are own selections.</p>	<p>Tiramisu, coleslaw with homemade mayo, curry, risotto, ravioli, bhajis.</p> <p>Students need to be able to select suitable recipes independently and be able to follow them. Some recipes provided; some are own selections.</p>	<p>panna cotta, Tunnocks tea cake challenge, NEA task 1 practical.</p> <p>Students need to be able to select suitable recipes independently and be able to follow them. Some recipes provided; some are own selections.</p>
<b>Key terms/vocab</b>	4C'S, Food Spoilage, Food Preservation, Food Packaging, Protein, Fat, Carbohydrates, Vitamins, Minerals, Deficiencies, Special Diets	Food Provenance, Conductions, convection, radiation, methods of cooking e.g. Boiling, frying etc, plasticity, gelatinisation, Sensory analysis.	Cereals, Fats, Dairy products, cuts of meat, marinade, tenderising, flat fish, round fish, oily fish, white fish.
<b>Independent learning / wider reading</b>	Following recipes. Selecting suitable recipes independently. Research tasks	Following recipes. Selecting suitable recipes independently. Research Tasks	Following recipes. Selecting suitable recipes independently. Research tasks
<b>Assessment</b>	Hygiene and Safety assessment Nutrition test. Practical assessment	Past exam questions linked to the topics being studied. Practical assessment.	Commodities project and NEA Task 1 mock
<b>Careers links</b>	Hospitality industry Nutritionist	Hospitality Research and Development Product development	Hospitality industry Research and Development Product development

	Focus	Autumn	Spring	Summer
<b>Year 11 Food</b>	<b>Topic</b>	NEA Preparation Commence NEA 1/ <b>NEA 2 2021/22</b> Mock	NEA 2	NEA 2 Completion Revision for summer examination
	<b>Key concepts/ideas</b>	Skills audit of year 11 - to assess for any gaps in skills knowledge - recap and recall of commodities and nutrients. Identify gaps in skills and complete practical lessons to help develop those skills.  NEA Mock sept – small version of NEA 2 to prep for release by the exam board Nov.  Commence NEA 1 set by the exam board (15% of the GCSE). (Released sept 1 <sup>st</sup> )  <b>Please note for the 2020-2022 cohort that NEA 1 is not going ahead – NEA 2 released sept 1<sup>st</sup> and is now worth 50% of the GCSE. Students have commence working on NEA 2.</b>	NEA 2 – continues. Selection of the final choice of dishes for NEA 2 practical exam. Final practical exam in February – date 08.02.22 Revision using the knowledge organisers. All written research to be submitted by Easter 2022. (Section A & C – planning/research & evaluation).	Understand key concepts in Food and Nutrition and be able to apply them to answer exam questions.  Review and make any final improvements to NEA 2.
	<b>Key skills</b>	Lessons consist of planning and research using ICT and testing and trialling and conducting practical research for the task.  Developing primary and secondary research techniques and skills – taste testing, trialling dishes, surveys, internet research.  Students develop their practical skills by researching and practising dishes that may be suitable for the task.	Dishes selected for the exam should meet the brief and demonstrate skill. Students off timetable for the practical element and need at least 3 hours for this practical exam.  Recipes to be finalised and then put into an 'order of work' to be followed during the exam.  Once the exam is complete students need to get opinion from others and feedback to be used in the evaluation section.	Complete any final improvements to NEA 2 & sign declarations - Ready for submission. Start revision – using various resources but also the knowledge organisers. Assess where there may be gaps in knowledge to target. Revision Guides Use past exam questions linked to topics and to develop exam technique.

		Students also develop their Presentation skills, Timing & Planning. Revision session using the knowledge organisers in preparation for the Nov mock exam.	Revision session using the knowledge organisers.	
<b>Key terms/vocab</b>		Skills – various practical skills – in particular those that are classed as higher-level skills e.g. portioning, pasta making, roux based sauces. Students need to be able to identify skills and name these in their NEA work.	Order of work, skills levels, evaluation.	Various words linked to all of the different topics of revision. E.g: Food Provenance, commodities, nutrition, food spoilage.  Words linked to exam questions: Justify, explain, describe.
<b>Independent learning / wider reading</b>		Independent research needed for the NEA mock and NEA 1/2 Revision skills.	Independent research needed for the NEA mock and NEA 1/2 Revision skills.	Independent revision using revision guides and other resources e.g. Blooket, Seneca, BBC Bitesize.
<b>Assessment</b>		Mock NEA & Mock written paper.	Assessed NEA 2 – monitoring progress. Assessment on forms.	Mock examination. Past exam questions.
<b>Careers links</b>		Hospitality industry Product development Research and development	Hospitality industry Product development Research and development Quality assurance	Hospitality industry Product development Research and development

	Focus	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	NEA
<b>Year 10 DT</b>	<b>Topic</b>	Tea light	Pewter casting	Christmas trivet	Role of the designer	Kinder surprise	Task lighting	
	<b>Key concepts/ideas</b>	Timbers and their properties Power generation	Metal properties and application. Hand skills. Understanding casting metals	Jigs and templates	Identifying the role of the designer. Designing products based on the design work of a given designer	Designing slot together products for laser cutting. CAD/CAM	Designing products to meet a need. Modelling ideas to check their suitability. CAD/CAM for pallet light	Identifying a client, developing a design brief and specification
	<b>Key skills</b>	Marking out and combining materials. Material finishes	Casting techniques, slag, keying acrylic. Working safely use of appropriate PPE	accuracy	Adopting the role of the designer	"D Design working to tight tolerances. Understanding material properties	2D Design and CAM using the CNC router modelling techniques	As above
	<b>Key terms/vocab</b>	Hardwood, softwood, timber, sustainable	Pour, cast		Designer, art movements and influence			
	<b>Independent learning / wider reading</b>				Researching other designers on the DT Spec			
	<b>Assessment</b>							GCSE mark scheme
	<b>Careers links</b>	Product designer joinery/carpenter.	Metal working skills	Carpenter/joiner	Product design	marketing	CAD CAM production	

	Focus	NEA	Exam Preparation
<b>Year</b>	<b>Topic</b>		



	<b>Key concepts/ideas</b>	Creating initial design ideas based on research and developing the ideas using an iterative design process		
	<b>Key skills</b>	Modelling ideas and refining to ensure that a suitable final product is created. Analysis of final product and on the specification and client requirements		
	<b>Key terms/vocab</b>			
	<b>Independent learning / wider reading</b>			
	<b>Assessment</b>		Past papers prior to final GCSE exam	
	<b>Careers links</b>			

	Focus	Autumn	Spring	Summer
<b>Year 10 Engineering</b>	<b>Topic</b>	BTEC Component 1 Exploring Engineering Sectors and Design Applications	BTEC Component 1 Exploring Engineering Sectors and Design Applications	BTEC Component 2 Investigating an Engineering Project
	<b>Key concepts/ideas</b>	Learning Aim B: Exploring engineering skills through the design process	Learning Aim A: Understand engineering sectors, products and organisations, and how they interrelate	LA A: Understand materials, components and processes for a given engineered product LA B: Investigate a given engineered product using disassembly techniques LA C: Plan the manufacture of and safely reproduce / inspect /test a given engineered product
	<b>Key skills</b>	Design process through the 5 stages of 'Iterative design process' Model making of ideas using a range of different materials and tools.	Understanding the varying engineering disciplines and associated specialities.	Increased knowledge base of Engineering material properties and applications. Planning and protocol procedures

		Analysis / Evaluation and presentation of final outcome techniques to meet the assessment set for a client engineered brief	Introduction to the main 9 engineering sectors : Automotive / Aerospace / Communications / Electrical + electronics / Mechanical /Environmental / Transport / Rail / Marine. Understanding the interconnections needed between engineering disciplines for them to work well The safe application of technical and practical knowledge	Manufacture planning, Q.C. and Q.A. systems in place for manufacturing
	<b>Key terms/vocab</b>	Define/Develop/Selection/Design/Evaluate Engineering and customer briefs	Engineering sectors and disciplines	Cutting/Shaping/Forming/Shearing. Robotic manufacture, Jigs, fixtures, fixings and fasteners
	<b>Independent learning / wider reading</b>	Engineering Materials across various categories such as ferrous/non-ferrous/thermoset and thermoform polymers/SMART materials and composites.	On-line and historical research of British Engineering heritage  Research into large Engineering organisations, SME's and small jobbing companies based locally in the East Midlands	Increasing knowledge base of manufacturing techniques, workshop tools for workshop floor practice HASAWA et Al 1974
	<b>Assessment</b>	Internal Assessment with external verification from Pearson Work must be submitted to a set deadline	Internal Assessment with external verification from Pearson Work must be submitted to a given deadline date	Internal Assessment with external verification from Pearson. Work must be submitted to a given deadline date.
	<b>Careers links</b>	Engineering manufacture, product design and product development	Introduction to a structured career path and progression opportunities for the 9 main engineering sectors.	Engineering technician role. Design engineering, Q.C. / QA. Manufacturing assembly ie, JCB / Toyota /local small business enterprise

	Focus	Autumn	Spring	Summer
<b>Year 11 Engineering</b>	<b>Topic</b>	BTEC Component 1 Exploring Engineering Sectors and Design Applications	BTEC Component 3; Understanding an Engineering brief	BTEC Component 3: Understanding an Engineering brief
	<b>Key concepts/ideas</b>	Learning Aim B: Exploring engineering skills through the design process	Synoptic unit building upon previous Unit 1 and Unit 2 learning to apply and resolve Engineering briefs	Synoptic unit building upon previous Unit 1 and Unit 2 learning to apply and resolve Engineering briefs
	<b>Key skills</b>	Design process through the 5 stages of 'Iterative design process' Model making of ideas using a range of different materials and tools. Analysis / Evaluation and presentation of final outcome techniques to meet the assessment set for a client engineered brief	Combining multiple skills learned and applying these skills to resolve briefs . Problem solving to redesign engineered products and make fit for purpose	Combining multiple skills learned and applying these skills to resolve briefs . Problem solving to redesign engineered products and make fit for purpose
	<b>Key terms/vocab</b>	Define/Develop/Selection/Design/Evaluate Engineering and customer briefs	Analytical analysis / Statistical information	Analytical analysis / Statistical information
	<b>Independent learning / wider reading</b>	Engineering Materials across various categories such as ferrous/non-ferrous/thermoset and thermoform polymers/SMART materials and composites.	Engineering design Manufacturing processes and applications	Engineering design Manufacturing processes and applications
	<b>Assessment</b>	Internal Assessment with external verification from Pearson Work must be submitted to a set deadline	Students will attempt previous set assessments to gain valuable exam experience	In May there will be 1 week where-in 2 Engineering assessments will be sat. Assessments will be externally marked

	<b>Careers links</b>	Engineering manufacture, product design and product development	Engineering / manufacturing sectors / Scientific	Engineering / manufacturing sectors / Scientific
--	----------------------	-----------------------------------------------------------------	--------------------------------------------------	--------------------------------------------------

	<b>Focus</b>	<b>Unit 1 Safety &amp; Security in the construction industry</b>	<b>Unit 2 Practical skills</b>	
<b>Year 10 Construction</b>	<b>Topic</b>			
	<b>Key concepts/ideas</b>	Safety and security in the construction industry. Covering H&S legislation and how it affects both the employer and employee. Fire risk assessments and types of fire extinguisher, Security of the physical site and data security	Cutting a range of joinery joints, building a stud wall, fitting patrise boxes and electrical outlets, building a serving hatch in a stud wall, painting and decorating the stud wall, tiling an area of the stud wall	
	<b>Key skills</b>	Identifying legislation and how it applies to the industry. Identifying how to keep the employees and public safe during a construction project. Identifying practices to keep data secure and why this needs to be done	Marking out, following plans, researching techniques needed to complete the job, identifying Risks and how to mitigate the risk,, planning the stages to complete a job, costing a job, identifying what a good job should look like	
	<b>Key terms/vocab</b>	HSE, PPE, PUWER, employer, employee, law	Plumb, marking out, tolerance, client, employee/employer	
	<b>Independent learning / wider reading</b>	Identifying different scenarios for applying this knowledge	Planning a job, costing the job, identifying what a good job should look like, evaluation of final work, researching other techniques when constructing projetcs	
	<b>Assessment</b>	Exam in y10	Student portfolio showing practical skills and the other LO	
	<b>Careers links</b>	Construction industry – trades and inspectors	Construction industry - trades	

	<b>Focus</b>	<b>Unit 2 Practical skills</b>	<b>Unit 3 Planning a construction project</b>	
<b>Year 11 Construction</b>	<b>Topic</b>	Continuation from y10		
	<b>Key concepts/ideas</b>		Identifying the stages in a commercial construction project. Identifying personnel in a construction job, their roles, outputs and responsibilities. Calculating materials required to complete a construction project	
	<b>Key skills</b>		As above	
	<b>Key terms/vocab</b>			

	<b>Independent learning / wider reading</b>		<b>Resesarching roles and responsibilities. Planning commercial jobs</b>	
	<b>Assessment</b>	<b>Coursework submitted to the exam board June</b>	<b>Terminal online exam</b>	
	<b>Careers links</b>	<b>Construction trades</b>	<b>Looking at roles I the construction industry</b>	