KS3-4 Curriculum Map: DT

	PRODUCT DESIGN 1	PRODUCT DESIGN 2	PRODUCT DESIGN 3	FOOD	TEXTILES	
Year 7	Design Skills Core Ideas: A process for designing. Iterative thinking. The Design Brief. The Design Specification. Presentation drawing styles. Product analysis. PEEL. Scale of production. CAD/CAM Core Skills: Defining design needs. Generating design ideas. Modelling and improving ideas. Presenting a design proposal. Analysing products. Using 2D and 3D CAD systems.	Timber and Manufacture Core Ideas: Timber sources and sustainability. Timber classification and characteristics. Manufactured boards. Timber finishes. Scale of production (jigs and templates). Quality Control (QC). Dowel and cross halving joints. Core Skills: Workshop safety. Measuring and marking out. Use of coping and tenon saws. Shaping and finishing. Files and glasspaper. Belt sander intro/safety. Pillar drill intro/safety. Chiselling cross halving joint.	Mechanisms and Structures Core Ideas: Mechanisms. Types of mechanical motion. Classes of lever. Linkages. Mechanical Advantage (MA). Velocity Ratio (VR). Systems block diagrams. Forces. Classification of structures. Reinforcing structures. Trusses. Core Skills: Recognising the parts of a mechanical system. Describing how systems work. Cargo bridge (CAD modelling). Modelling design ideas.	Preparation and Nutrition Core Ideas: Using kitchen equipment. Food Safety. Vitamins. Carbohydrates. Dietary Fibre. Energy. Protein. Fat. Minerals. Nutrition and healthy eating. Core Skills: Washing up. Knife skills. Using an oven. Using a grill. Using a kettle. Using the hob. Using a blender	Fibres and Fabrics Core Ideas: Understanding basic safety in the Textiles Room. Understanding the names and uses of equipment. Sources of different textile fibres. Fabric construction techniques. Core Skills: Threading and preparing needles. Cutting materials. Variety of hand stitching techniques. Using the sewing machine	
Year 8	Metals and Manufacture Core Ideas: Metals sources and sustainability. Metal classification and characteristics. Metals finishes. Isometric and orthographic drawing. Manufacturing specifications. Tolerance and QC. Analysing products (PEEL). Core Skills: Measuring and marking out. Shaping and edge finishing. Strip heater and former. Use of pillar drill. Joining: pop rivets. Phone holder analysis.	Systems and design styles Core Ideas: Open and Closed loop systems (Manual and automatic) Practical Electronics. Design Styles (Art Deco and Art Nouveau). Types of light bulb. Core Skills: CAD/CAM. Using self-adhesive vinyl. Practical Electronics. Generating design ideas	Polymers and the Environment Core Ideas: Polymers sources and sustainability. Polymer classification and characteristics. 6Rs. Life Cycle Assessment (LCA). Obsolescence. Vacuum forming Core Skills: Styrofoam modelling. Vacuum forming. Sustainability assessment	Food choices Core Ideas: Special diets/medical conditions. Religious food choices. Environmental issues. Seasonal fruit and vegetables. Vegetarian choices Core Skills: Research skills. Knife skills. Using the hob. Making pastry. Making pasta. Making pizza dough. Using the oven	Materials in textiles Core Ideas: The work of other designers and design movements. The properties of different fibres and fabrics. To produce a design specification Core Skills: To Design in the style of a specific design movement. Using a range of stitches on the sewing machine. To learn how to produce hems and seams.	

Year 9	Joining and Design Styles Core Ideas: Design styles: Memphis vs Bauhaus. Joining methods. Adhesives. Design strategies for creativity Core Skills: CAD/CAM laser cutting. Measuring and marking out. Shaping and finishing. Lap joint. Dowel joint. Mortise and tenon joint. Chiselling for mortise.	Product Design and ergonomics Core Ideas: User Centred Design. Ergonomics. Anthropometrics. CAD/CAM advantages and disadvantages. Sustainability considerations Core Skills: Presentation and sketching Analysing products. Designing. Modelling and prototyping. CAD/CAM		Food science Core Ideas: The function of bread ingredients. The function of cake ingredients. The function of pastry ingredients. The function of eggs. Gelatinisation. Gas-in liquid-foam. Raising agents Core Skills: Research skills. Knife skills. Preparing fruit and vegetables. Cooking methods. Preparing, combining, shaping. Sauce making. Dough making. Raising agents. Setting mixtures.	Portable textiles Core Ideas: How to conduct a Product analysis. Intellectual property. Branding and Advertising. Synthetic Fabrics. Fasteners. Complex sewing techniques Core Skills: Revising sewing machine skills. Threading up the sewing machine. Sewing challenging fabrics. Using the heat press. Hems and Seams. Attaching Eyelets and grommets.	
	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	**SUMMER 2**
Year 10 PROD DESIGN	Birdhaus Core Ideas: Automation in Manufacture. Changes in modern job market. Prototyping. Scales of Production. Manufacturing Systems. Tech Push / Market Pull Core Skills: Interative Designing, Card Modelling, 3D CAD Modelling, Designing in the style of bauhaus.		Flatpack Core Ideas: Stock Forms of Materials. Paper and Boards. Ergonomics and Human Factors. Quality Issues in Manufacture. Drawing Techniques. Core Skills: Drawing Styles, Iterative Designing, Card Modelling, 2D CAD Modelling.		Chocolate Bar Core Ideas: Industry and Enterprise. Plastics. Material Working Properties. Plastic Processing Systems Core Skills: Designing for a client, Card modelling, 3D and 2D CAD Modelling, Packaging Design, Vacuum forming.	**NEA** **Core Ideas:** Investigation and Analysis of Context. Researching needs of Context. Evaluating the work of others. Writing a Client Profile and Target Market **Core Skills:** Investigtion, Analysis, Research.
Year 10 RESIST MAT	Garden ornaments Core Ideas: Metals: ferrous, non-ferrous and alloys, sources and origins, stock forms, types and sizes; Metal finishes; heat treatment; sustainability considerations. Properties of materials. Joining metals. Batch production, product consistency and tolerance. Use of jigs and templates. Tolerance, GO – NO GO. CAD/CAM advantages and disadvantages.	Bookend Core Ideas: Woods: hardwoods & softwoods, sources and origins, sustainability considerations (+FSC), stock forms, types and sizes. Conversion and seasoning. Wood finishes. Properties of materials. Wood joints - box construction. Flat pack/KD fittings. CAD/CAM advantages and disadvantages. Ecological and Social issues in Design and Technology. 6Rs#. Obsolescence. Lifecycle assessment. Drawing styles. Core Skills: Marking and cutting to length, squaring ends. Marking, cutting and chiselling joints. Planing joints flush. CAD/CAM laser cutting. Timbers - marking, shaping and finishing processes.		Lighting Core Ideas: Manufactured boards: advantages and disadvantages, characteristics and processing. Properties of materials. Adhesives for timbers. Wood joints - frame construction. CAD/CAM advantages and disadvantages. Scale of production. Commercial manufacture and CNC. The work of others: Designers and companies. Ergonomics and anthropometrics. General materials theory. Core Skills: Marking and cutting to length, squaring ends. Marking, cutting and chiselling joints. Planing joints flush Finishing timber products. CAD/CAM vinyl cutting and transfer. Timbers - marking, shaping and finishing processes.		**NEA - section A** **Core Ideas:** Investigation and Analysis of Context. Researching needs of Context. Evaluating the work of others. Writing a Client Profile. Identifying client needs. Outlining product requirements. **Core Skills:** Identifying design opportunities. Product analysis. User surveys. Justifying user and product needs. Conducting relevant research

	Adhesives. Manufacturing specifications. Product analysis. Designing and modelling ideas. General materials overview. Core Skills: Centre lathe. Forge. Annealing. Tapping & threading. Metal hand forming processes. Using jigs and templates. GO – NO GO gauge. Shaping acrylic: coping saw, filing. Edge finishing acrylic. Pop riveting. CAD/CAM laser cutting. Using Tensol & syringe to bond acrylic.					
Year 10 TEXTILES	<u>Bodice or apron</u> Core Ideas: Prototyping. Sources of fibres. Properties of fibres and fabrics. Fabric construction. Stock forms. Textiles components. Scales of Production. Looking at textiles designers Core Skills: Creating block patterns. Sewing a range of seams. Sewing darts. Sewing a hem. Sewing a pocket. Sewing a neckline. Fashion drawings.		<u>Tote Bag</u> Core Ideas: How cultures and society affect design. Different design strategies. Planned Obsolescence. Types of surface embellishment. Types of dye methods. Types of print methods. Treatments and finishes. Oblique drawing. Isometric drawing. Perspective drawing. Orthographic projection drawing. Design styles and the work of others Core Skills: Product analysis. Sewing pleats. Sewing gathering. Sewing pockets. Sewing pin tucks. Sewing applique. Printing methods. Sewing components and fastenings. Designing and making a tote bag.		<u>Upcycling</u> Core Ideas: Tolerance. Material management. Ergonomics. Anthropometric data. Industry and Enterprise. Generating energy. Storing energy. Sustainability (The 6 R's). Lifecycle Assessment. Ecological Footprint. Social Footprint. Core Skills: Design development Upcycling an existing textiles product. Adding construction details. Adding decorative details.	**<u>NEA</u>** **Core Ideas:** Identify, investigate and outline design possibilities **Core Skills:** Analysis of Context. Researching the needs and wants of the client. Evaluating the work of others. Looking at economic and social challenges.
Year 11 PROD DESIGN	<u>NEA - AO1B/C</u> Core Ideas: Design brief. Specification. Generating Ideas. Core Skills: Identifying client needs and wants.	<u>NEA - AO2C/D</u> Core Ideas: Generating Ideas. Modelling 3D/Card. Testing Techniques. Testing Materials Core Skills: Sketching, Card/foam modelling, CAD, analysis.	<u>NEA - AO2D/E</u> Core Ideas: Realising Ideas Core Skills: Various practical skills dependant on student needs.	<u>NEA - AO3F</u> Core Ideas: Evaluation and Analysis of Idea. Core Skills: Evaluating and analysing of own work	<u>Revision</u> Core Ideas: As needed Core Skills: Exam Technique	
Year 11	<u>NEA sections A, B&C</u>	<u>NEA sections C&D</u>	<u>NEA section E</u>	<u>NEA sections E&F</u>	<u>Revision</u>	

RESIST MAT	Core Ideas: Ongoing relevant research. Writing a design brief. Writing a design specification. Generating initial design ideas. Systems in DT. Mechanisms. Production techniques. Production systems. Core Skills: Finding and recording relevant information. Producing a detailed brief and specification. Creative designing techniques.	Core Ideas: Presenting design ideas. Developing, modelling and testing ideas. Producing a manufacturing specification. Longer answer technique. Revision for mock exam. Core Skills: Producing detailed design ideas. Iterative development and modelling. Physical modelling and 3D CAD. Communicating detailed information to allow manufacture.	Core Ideas: Realising design ideas. Making a prototype Core Skills: Use of manufacturing specification to make a prototype. Making processes as appropriate to solution. Work safely. Work with accuracy. Apply quality control.	Core Ideas: Evaluation of prototype. Core Skills: Testing and evaluating their prototype against the brief and specification. Suggest improvements to their product. Use client feedback to justify points.	Core Ideas: PEEL in longer answers. Revision techniques. Exam question practice. Core Skills: Build subject knowledge. Practice long and short answers. Apply PEEL in answers.	
Year 11 TEXTILES	NEA - AO1/2 Sections A/B/C Core Ideas: Additional Research. Design brief. Specification. Generating Ideas Core Skills: Identifying client needs and wants and designing using the specification.	NEA - AO2 C/D Core Ideas: Generating Ideas. Developing. Modelling. Testing Techniques. Testing Materials Core Skills: Sketching. Fashion drawing. Annotation. Prototype. Producing samples of techniques. Manufacturing specification.	NEA - AO2 D/E Core Ideas: Realising Ideas Core Skills: Using developed ideas to produce a final product that meets the needs of the client.Making diary.	NEA - AO3 F Core Ideas: Analysing and evaluating. Core Skills: Testing the product against the design brief and specification. Feedback from client.	Revision Core Ideas: Revision Core Skills: Exam Technique. Looking at how to answer longer questions.	