

KS3 Design & Technology Curriculum overview

Year 7			Year 8			Year 9		
8 L e s s o n s	RM	Workshop Introduction: Intention: To become familiar with workshop rules and operating procedures for fixed machinery. NC link: D2, E2, E4, M1, K1	8 L e s s o n s	RM	Design movements: Intention: To investigate the uses, properties and categories of Metals, to explore the design movement of Art Deco and manufacture a pewter key ring. NC link: D1, D2, D4, D5, E1, E4, M1, K1	7 L e s s o n s	RM	Sustainability: Intention: To investigate environmental issues with the 'throw away' culture and produce an upcycled storage box from a range of materials. NC link: D1, D2, D3, D4, D5, E3, E4, M1, K1.
	TX	Machine Skills: Intention: To identify the use of a range of tools and equipment and identify the properties and use of materials by making a section of applique bunting. NC link: M1, K1		TX	Fibres to Fabrics: Intention: To investigate how fibres are turned into fabrics and produce your own felt sample on a high quality hat understanding the main difference between a seam, hem and dart. NC link: D2, D5, M1, K1		TX	Existing designers: Intention: To investigate the work of designer Lucy Sparrow and demonstrate full working knowledge of materials and equipment to recreate a supermarket product. NC links: D1, D5, E1, E2, M1
	FD	Food Safety Intention: To develop safety and practical skills within a food technology environment including rubbing in techniques and knife skills. NC link: M1, C1, C2, E1		FD	Pastry Skills Intention: To explore and understand functional and chemical properties in pastry making NC link: M1, C1, C3, C4, D1		FD	Food Presentation Intention: To identify the roles within the catering industry and formulate food presentation skills by independently selecting ingredients. NC links: C1, D4, E2, M1
	GP	Environmental Issues Intention: To develop an understanding of environmental issues by creating a new brand and product using recycled plastic. NC link: M1, D2, E3		GP	Communication Techniques Intention: To explore the ways in which designers communicate ideas, and to develop skills in a variety of communication techniques NC link: D5, M1		GP	Design Strategies Intention: Explore the strategies used and by designers to create products, and create an innovative sustainable solution to a problem. NC link: link:D1, D2, D3, D4, D5, E3, E4, M1, K1.
1 0 L e s s o n s	RM	Planning for making: Intention: To consider the planning and stages of manufacturing a product and using skills learned in previous phone stand project, to make a sweet dispenser. NC link: M1, K1, K2.	1 0 L e s s o n s	RM	Sustainable Power Intention: To investigate power, electricity and renewable energy sources to produce a sustainable, working wind turbine in groups. NC link: D1, D2, D3, D5, E2, E3, M1, K1,	12 L e s s o n s	RM	Using electronics: Intention: To investigate plastics and their environmental impact on the world. Using electronics and power knowledge create a CAD/CAM LED sign. NC link: D1, D2, D3, D4, D5, E2, E3,K3, M1
	TX	Pattern templates: Intention: To develop knowledge of pattern cutting and laying skills and increase applique skills by making a 3D felt animal. NC link: D5, M1, K1		TX	CAD/CAM: This is me! Intention: To explore the uses, advantages and disadvantages of CAD/CAM in order to produce a creative design solution. To further develop knowledge of seams and hems in producing a buttoned cushion cover. NC links: D1, D5, E1, E2, M1, K1		TX	Trend forecasting: Intention: To build on Photoshop skills and produce an innovative new trainer design with a repeat pattern reflecting current trends. NC links: D1, D5, E1, M1
	FD	Cooking Methods Intention: To formulate and expand practical skills by using different methods of cooking NC link: C1, C2, C4, , D2, D5, M1		FD	Food Provenance Intention: To explore foods from around the world and identify how religion affects the foods we eat. NC link: C1, C3, C4, C5, D1, M1		FD	The EHO Intention: To continue to build on practical skills both independently and as part of a team by looking at the role of the Environmental officer. To explore the wider world, focusing on food trends and sustainability. NC links : C1, D4, E2, M1
	GP	Using Technology to change the world Intention: To design an innovative solution to a global issue through the application of coding. NC link: M1, K1		GP	Brand Identity Intention: To create a new brand of confectionary,exploring font style, colour and layout of packaging. NC link: D1, D3, D5, M1, E2		GP	Designing for a user Intention: To create an innovative solution to a problem, taking into account the needs and wants of an identified user NC link: link:D1, D2, D3, D4, D5, E3, E4, M1, K1.
<p>By the end of year 7 students will have substantive knowledge of safety in all areas, they will have learnt how to carry out a basic risk assessment and identify potential hazards in all areas.They will understand the difference between a fibre and a fabric and gain an in-depth understanding of various materials and processes; cotton, plastics, plywood, pine, standard components, bread, fermentation, inputs and outputs and basic coding. They will gain an understanding of the design process and the impact a designer can have on the environment. They will learn how D&T applies to the wider world and begin to problem solve through design. The amplification of their disciplinary knowledge will be substantial for many due to the lack of D&T in many primary schools. They will know how to use a sewing machine and carry out applique, they will learn how to make a fabric into a 3D shape with the use of a paper pattern and pattern markings. They will know how to mark, cut and join woods and plastics and use the machines and hand tools that assist them with understanding. They will be able to design using the laser cutter and code a microbit. Their knife and oven skills will be developed in making coleslaw, apple crumble, pitta pizza and then be able to apply these skills to a design brief in making, shaping and baking bread, making flapjacks and cupcakes.</p>			<p>By the end of year 8, students will have substantive knowledge of knitted and non-woven fabrics and the technical terms for textiles processes to make 3D products. They will have looked into existing movements including Art Deco. They will have gained knowledge into metals theory and casting. They will be able to test materials and have an understanding of the different types of energy including electricity generation. They will understand the importance of communication in design and how to assemble nets and apply packaging designs. They will be able to use the vacuum former and become more experienced in using 2D design. An understanding of the importance of portion control and how to produce a consistent product using batch control will be gained along with the functions of ingredients in pastry making. The various strains of food poisoning will be understood and how cross contamination is a main cause. Sustainability, the 6 R's and food miles will add to their global awareness. Students' disciplinary skills will have advanced and they will see links across all areas of D&T. Students will be able to draw in orthographic, isometric and perspective and be able to apply neat render to all sketches. They will be able to use google sketch up, 2D design and the line bender. They will know how to model using card and MDF. They can use a hot glue gun and cast metal. They can make their own felt and understand the working characteristics of the fabric along with sewing a dart, seam and hem. They can make their own pattern templates with the correct pattern markings. They can make their own pastry making mini quiche and sausage rolls. They can work with high risk foods making a balti, sweet and sour and spanish rice also increasing their cultural capital.</p>			<p>By the end of year 9, students have developed their substantive knowledge by looking in depth at sustainability and the impact of design on the environment. They have increased their knowledge of LED's, mechanisms, coding, photoshop and CAD/CAM systems. Their experience of using the design process has increased and now includes how to analyse trends in design, including food trends. They know the different job roles in the kitchen and catering industry and the elements of design needed to produce a restaurant quality dish. Their knowledge of food poisoning has been developed and now relates to the job role of an EHO. They have a working knowledge of printing techniques and developed their use of the heat press. They have developed their knowledge of plastics and smart materials and can now code and understand electronic systems. They can work with LED's and develop their knowledge of iconic designs, including looking at the work of existing designers such as Lucy Sparrow. Their disciplinary skills now include the ability to time plan, dovetail recipes, research current products and other designers work. They can model prototypes in various materials and develop empathy in designing for others. They have increased their practical skills in all areas and can now work independently and in a team. They can safely make carbonara, chicken goujons, various sauces and pasta from scratch whilst presenting it in a restaurant quality way.</p>		

KS3 Design & Technology Curriculum skills overview

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8 L e s s o n s	RM	Work shop introduction Designing shape of phone stand top Test their own design Use basic workshop hand tools & machines to manufacture a simple phone stand.	8 L e s s o n s	RM	Design movements: Pewter Casting Research the characteristics of Art Deco design Produce a range of art deco-inspired design ideas Produce a mould using CNC technologies Cast and polish up their pendant product	7 L e s s o n s	RM	Sustainability The importance of considering 'Sustainability' in design. Research products that have been made in a sustainable manner. Produce a range of design ideas for a storage box. Select appropriate materials for their product. Select appropriate techniques and processes to make their product. Produce a 'Diary of Manufacture'
	TX	Machine Skills Sewing machine use and safety Introduction to applique. Using patterned woven fabrics Introduction to surface decoration techniques Research into cotton fibre , it's properties and global uses. Basic design of bunting decoration Evaluating new techniques learnt.		TX	Fibres to fabrics Understanding of the difference between a seam, hem and dart Characteristics of knitted fabrics. The difference between a fibre and a fabric. Making a hat using a knitted fleece fabric Making own felt Research into non-woven fabrics Design of a logo		TX	Existing designers Research into existing designer Lucy Sparrow Evaluate the use of felt in her products. Develop pattern making skills to make a product 3D. Recap of pattern markings Design a product based on a supermarket item Making a 3D product. Appropriate choice of surface decoration
	FD	Food Safety Introduction to knife skills bridge and claw Safe use of the oven, sharp knives Practical tasks - Apple Crumble, coleslaw, pitta pizzas Apple crumble practical evaluation key assessment		FD	Pastry skills Identifying the principles of health through eatwell guide Sensory analysis of different types of pastry Making of savoury dishes with different types of pastry Evaluation of puff pastry product Identifying and understanding the functions of ingredients and production of raising agents		FD	Food Presentation Design and present food attractively Evaluate 6 elements of design Select and plan independent practical Identifying the principles of health through eatwell guide
	GP	Environmental Issues Research and explore the impact of plastic on the planet Develop a brand and create logo designs Use a variety of hand tools to mould, shape and finish a keyring made from recycled plastic Evaluate the final keyring and packaging		GP	Communication Techniques Drawing skills and communication techniques. (Isometric drawing, orthographic, perspective, rendering, freehand sketching.) Producing a pre cut egg cup using line bender		GP	Sustainable architecture Research and explore existing designers. Create designs for a product that Use a series of techniques to develop designs for the product, and refine the detail
1 0 L e s s o n s	RM	Planning for making Use a 'kit' of parts to assemble a wooden sweet dispenser. Understand the need to work to tolerance. Enhance their product by using the laser cutter to add a personalised design	1 0 L e s s o n s	RM	Sustainable power Research the various ways by which electricity is generated. Work in pairs to: Design and test a range of propellor designs. Design and construct a structure to support the propeller and 'generator' Adapt the structure to take into account different wind directions.	1 2 L e s s o n s	RM	Using electronics Research sign and signage. Produce a range of design ideas for engraving onto their product. Basic electronic circuits - series/parallel. Soldering. Adhesives - joining different materials Select appropriate techniques to assemble all the component parts of their sign
	TX	Pattern templates Designing an animal beanie buddy Introduction to pattern making, pattern markings and how to adapt a penguin pattern template Developing skills in more complex applique Use of felt and components Peer assessment of the quality of the end product.		TX	CAD/CAM Evaluate the use of polyester Develop the use of CAD using photoshop Design a product based on personal attributes Making a buttonhole.		TX	Trend forecasting: Nike ID Research into trends Design a new stylised trainer Photoshop skills. Printing techniques Design a repeat pattern Use of the heat press and polyester fabric. Using bondaweb. Sewing a zip/buttons/buttonholes
	FD	Cooking methods Research company background Practical skills - Kneading, creaming, melting method Logo design CAD CAM Sensory analysis		FD	Food provenance Research into food around the world, including religion and culture Practical tasks - chicken balti, sweet and sour chicken, spanish rice Cooking techniques and characteristics of ingredients - reheating, high/low risks foods, gelatinisation in sauce making Understanding of sustainability including food provenance, food miles, global warming and climate change		FD	The EHO Practical skills - team planning, pasta making/shaping, pasta sauce Focus on nutrition, special dietary needs Research Food Trends
	GP	Using technology to change the world Research and explore how new technologies can have a positive effect on climate change Explore how to code a Microbit, and how it could be applied to products Work collaboratively to create a prototype design for a product. Design ideas,card modelling.		GP	Brand identity Research and evaluate existing confectionery packaging Create design ideas for confectionary and create a suitable brand targeted at a user group Create confectionery and packaging using a variety of CAD Create confectionery using MDF modelling techniques and vac forming		GP	Designing for a user Create designs for a product that solves a need in a particular context. Use a series of techniques to develop designs for the product, and refine the detail

<p>By the end of Year 7:</p> <ul style="list-style-type: none"> • How to work safely in all areas and identify hazards. • Know how to use a sewing machine and carry out applique. • Know how to work with; measure, mark, cut and join woods and plastics. • Know the different methods of cooking; how to turn on and safely use the oven and hob. • Develop knife cutting skills (bridge and claw) • Understand sustainability and its impact on designing. • Know how to test and evaluate ideas and products. 	<p>By the end of Year 8:</p> <ul style="list-style-type: none"> • Know the characteristics of construction methods of fabrics (knitted and non-woven fabrics) • Understand the terms; dart, seam and hem • Know the difference between ferrous, non-ferrous and alloy metals. • Know how to work with metals including the casting process. • Know the different types of pastry and their characteristics. • Understand food provenance. • Understanding of the different types of sustainable energy including electricity generation. • Draw in orthographic, isometric and perspective and be able to apply neat render to all sketches • Operate a variety of CAD programs including google sketch up, 2D design and photoshop. • Know how to test, evaluate and refine their ideas and products against a specification. 	<p>By the end of Year 9:</p> <ul style="list-style-type: none"> • Knowledge of the strategies used by designers to generate products, including CAD • Select, model and use a wider, more complex range of materials, components and ingredients, taking into account their properties. • Understand the responsibility of designers' impact on products in society • Develop an understanding of the hospitality and catering industry including career pathways • Understand the risks and causes of food poisoning and how to prevent them. • Refine knife skills (julienne, baton, dice, slice) • Understand circuitry and the process to solder electrical components. • Know how to test, evaluate and refine their ideas and products, taking into account the views of intended users.
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