FILM

Note: a number of resources appear in

13

		Teache F G/II	FI	2. Laur		eforming Team - Some Tips	TT kite Target Audience		Research G W	Shop Factsheet fedheet Makes	B IIIH IIW ze ugos seopi		F G			ining You	r Design	idea great? ng Design Studo: A Two Pipe	P. E. Target Audience Work the et	prise G I Bush by Columb	W	The for Pitching - Onds Ruse,		resenting Yo		od Top Tips B B B B B B B B B B B B B		M I 0102 SAA	Finishing G I
		Design Ventura Over Handling Collection i	Design Ventura Brief	Acrishop1: Launch	Design Ventura Tean	Merkingasa High Po	Design Wentura Tool Design Museum Sho	Shop Information Po	Markshop E Bunch acation Research M	The Design Museum Farget Audience Wo Harding Collection	Ne search and Initial	Design Ventura Tool	n the Design Studio Acrishop 2: Ideas	Prototyping Activity from Crisis to Creati	hide the Design St.	Alorishop 2: deas	ludging Ofteria Nefining an idea Act	What makes a good inside the Enterprisis Problem	Design Ventura Tool Natuating Branding	Acrishop 3: Enterpo	Budget Sheet Templ	Design Ventura Top Design Ventura Top	Design Ventura Pitch How to Enter - Prese Manies Studone Fre	Minning Student Ent	Adging Oiteria Acrishop 3: Enterpr	Dass Ploth Guideline Riching Template ar	How to Enter - Prese	Audget Sheet Templ Comple Student Ent	Alarkshop 4: Finishir Aftat next? Pursuing
Aims and Objectives:	demonstrate their understanding that all design and technological activity takes place within contexts that influence the outcomes of design practice develop realistic design proposals as a result of the exploration of design opportunities	•	•	• •	•	- $+$ $+$	-++	• •	• •	• •		\vdash	• •		•	•	• •		• •	•					• •				
The study of Design and Technology seeks to prepare students to participate	and users' needs, wants and values • use imagination, experimentation and combine ideas when designing • develop the skills to critique and refine their own ideas whilst designing and making	H				\exists						•	• •		•	• •	•			•					• •				
confidently and successfully in an increasingly technological world; and be aware of, and learn from, wider	 communicate their design ideas and decisions using different media and techniques, as appropriate for different audiences at key points in their designing 											•	• •	•	•	• •	•			•		• •			•	• •			
influences on design and technology, including historical, social/cultural, environmental and economic factors.	develop decision making skills, including the planning and organisation of time and resources when managing their own project work develop a broad knowledge of materials, components and technologies and practical			• •	•	•			•			•	•	•		•	•	•		•	•				•				
GCSE design and technology specifications must enable students to work creatively when designing and making and apply technical and practical	skills to develop high quality, imaginative and functional prototypes • be ambitious and open to explore and take design risks in order to stretch the development of design proposals, avoiding clichéd or stereotypical responses considers the contraction proposals is shilling and marketing of products.		• •	•					•			\vdash	• •	•	• •	• •	•			• •									
expertise, in order to:	consider the costs, commercial viability and marketing of products demonstrate safe working practices in design and technology use key design and technology terminology including those related to: designing, innovation and communication; materials and technologies; making, manufacture and	H	•	•		•			•			•	• •	•	• •				•						•	• •			
	production; critiquing, values and ethics Technical Principles In order to make effective design choices in relation to which materials, components and systems to utilise,																												
	students will need a breadth of technical knowledge and understanding that includes: • the impact of new and emerging technologies on industry, enterprise, sustainability,				П	\parallel	П							П	•					•	•	T							
GCSE specifications in design and technology must require students to	people, culture, society and the environment, production techniques and systems • how the critical evaluation of new and emerging technologies informs design decisions; considering contemporary and potential future scenarios from different perspectives, such as ethics and the environment		• •							•					•														
demonstrate the necessary knowledge, understanding and skills required to undertake iterative design processes of	Now energy is generated and stored in order to choose and use appropriate sources to make products and to power systems developments in modern and smart materials, composite materials and technical		П																										
exploring, creating and evaluating. Specifications must require students to demonstrate the mathematical and	textiles • how electronic systems provide functionality to products and processes, including sensors and control devices to respond to a variety of inputs, and devices to produce a																												
scientific knowledge, understanding and skills set out in appendix 1.	range of outputs • the use of programmable components to embed functionality into products in order to enhance and customise their operation • the functions of mechanical devices, to produce different sorts of movement, changing																												
	the magnitude and direction of forces the categorisation of the types and properties of the following materials: paper and boards; natural and manufactured timber; ferrous and non-ferrous metals;		\vdash											+															
	thermoforming and thermosetting polymers; natural, synthetic, blended and mixed fibres, and woven, non-woven and knitted textiles In addition, when designing and making (in relation to at least one of the material categories outlined above			Ц	Ц									Ш		Ц													
	or the components and systems outlined above) students should develop an in-depth knowledge and understanding of: • the sources, origins, physical and working properties of the material categories or the				П							П	П						T										
	components and systems, and their ecological and social footprint the way in which the selection of materials or components is influenced by a range of factors, such as functional, aesthetic, environmental, availability, cost, social, cultural and	H	+	\parallel	+	#	• •		H		H	\parallel	+	\mathbb{H}	•	\parallel	H	#	•	•	•	+				+			
	ethical • the impact of forces and stresses on materials and objects and the ways in which materials can be reinforced and stiffened • stock forms, types and sizes in order to calculate and determine the quantity of		\parallel	H	\parallel	\parallel								Ħ															
	 stock forms, types and sizes in order to calculate and determine the quantity of materials or components required alternative processes that can be used to manufacture products to different scales of production 	+	+	\parallel	+	$+\!\!\!+$	+		H	+		\parallel		\mathbb{H}			H	•			\dashv	+				+			
	 specialist techniques and processes that can be used to shape, fabricate, construct and assemble a high quality prototype, including techniques such as wastage, addition, 		Ħ	Ħ	\parallel		\parallel		Ш					П			Ш												
	deforming and reforming, as appropriate to the materials and/or components being used appropriate surface treatments and finishes that can be applied for functional and aesthetic purposes																	•											
	Designing and making principles understand that all design and technological practice takes place within contexts which inform outcomes		• •	• •	•	• •	• •	• •	• •	• •		•	• •	•	•	•	•		• •	• •	•				• •				
	 identify and understand client and user needs through the collection of primary and secondary data demonstrate an ability to write a design brief and specifications from their own and 		• •	•		- $+$ $+$	• •	_	• •	• •	\perp								• •										
	others' considerations of human needs, wants and interests investigate factors, such as environmental, social and economic challenges, in order to identify opportunities and constraints that influence the processes of designing and					\dashv		• •		• •			•		•	•			•	•	•								
	making • explore and develop their ideas, testing, critically analysing and evaluating their work in order to inform and refine their design decisions thus achieving improved outcomes											•	• •			• •	• •			•					• •				
	investigate and analyse the work of past and present professionals and companies in the area of design and technology in order to help inform their own ideas									•					•			•											
	 use different design strategies, such as collaboration, user-centred design and systems thinking, to generate initial ideas and avoid design fixation 		• •	•	•		• •	• •	•	•		•	• •	•		• •	•		•										
	 develop, communicate, record and justify design ideas, applying suitable techniques, for example: formal and informal 2D and 3D drawing; system and schematic diagrams; annotated sketches; exploded diagrams; models; presentations; written notes; working 											•	• •	•		• •	•			•					•	• •			
	drawings; schedules; audio and visual recordings; mathematical modelling; computer- based tools - design and develop at least one prototype that responds to needs and/or wants and is fit for purpose, demonstrating functionality, aesthetics, marketability and consideration											•										•							
	into to purpose, demonstrating functionality, describers, marketability and consideration of innovation make informed and reasoned decisions, respond to feedback about their own																					•							
	prototypes (and existing products and systems) to identify the potential for further development and suggest how modifications could be made in relation to at teast one of the material categories listed above, students are required to develop and apply in-depth knowledge by:		Н				Ш									Щ				•		_		Ш	•				
	selecting and working with appropriate materials and components in order to produce a prototype using appropriate and accurate marking out methods including: measuring and use of		П		П					•																			
	reference points, lines and such aces maning out meutous motioning, measuring and use or reference points, lines and surfaces; use templates, jigs and/or patterns; work within tolerances; understand efficient cutting and how to minimise waste using specialist tools and equipment, appropriate to the materials or components used																												
	(including hand tools, machinery, digital design and manufacture), to create a specific outcome		H											Н							4								
	 using specialist techniques and processes to shape, fabricate, construct and assemble a high quality prototype, including techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used using appropriate surface treatments and finishes for functional and aesthetic 					$\perp \mid \perp$	$\perp \mid \mid$							Ш							_	\perp							
Links to Mathematics and Science	purposes		Ц									Ц -						_			L								
Mathematical skills requirements Arithmetic and numerical computation	Examples of D+T Applications				Ī											Ī			Ī			T							Ī
Recognise and use expressions in decimal and standard form Use ratios, fractions and percentages Calculate surface area and volume	Calculation of quantities of materials, costs and sizes scaling drawings, analysing responses to user questionnaires Determining quantities of materials			H	\parallel	\parallel	\exists							#						•	•	\downarrow							
Handling data Presentation of data, diagrams, bar charts and histograms	Determining quantities of materials Construct and interpret frequency tables		Ħ	Ħ	Ħ	#	$\exists \exists$				H	Ħ		Ħ		H						\mp							
Graphs Plot, draw and interpret appropriate graphs	Analysis and presentation of performance data and client survey responses			П	I		Ħ							\blacksquare							1								
Translate information between graphical and numeric form Geometry and trigonometry Use angular measures in degrees	Extracting information from technical specifications Measurement and marking out creating tesselated natterns		\parallel	Н	\parallel	#	\blacksquare		\coprod	+				\mathbb{H}			\coprod				\parallel								
Use angular measures in degrees Visualise and represent 2D and 3D forms including two dimensional representations of 3D objects	Measurement and marking out, creating tesselated patterns Graphic presentation of design ideas and communicating intentions to others	I	Ħ	Ħ	\dagger	$\parallel \parallel$	\parallel					•	•	•							\parallel	\top				• •			
Calculate the areas of triangles and rectable Scientific knowledge and skills	Determining the quantity of materials required			Ħ	Ħ																•								
requirements Use scientific volcabulary, terminology and definitions	Examples of D+T applications		T		П																								
Quantities, units and symbols SI units (e.g. kg, g, mg; km, m, mm; kJ, J),	Appropriate use of scientific terms when developing a design brief and specifications	\mathbb{H}	+	H	+	$\dashv \vdash$	+		H			\vdash		\mathbb{H}			H	-			\dashv	+				+			
prefixes and powers of ten for orders of magnitutde (e.g. tera, giga, mega, kilo, centi, milli, micro and nano)	Calculation of quantities, measurement of materials and selection of components				\prod																•								
Metals and non-metals and the differences between them, on the basis of their characteristic physical and chemical					П		П			•				П								T							
properties Life cycle assessment and recycling The basic principles in carrying out a life	Classification of the types and properties of a range of materials Selection of materials and components based on ethical factors, taking into consideration.	H	Ħ	H	Ħ	\parallel	+					Ħ		#		H					#	+							
The basic principles in carrying out a life cycle assessment of a material of product Using materials	Selection of materials and components based on ethical factors, taking into consideration the ecological and social footprint of materials Understanding of properties of materials and how they need to be protected from	H	\parallel	H	\parallel	#	\exists		H	-		\parallel		#	•		H				#	\perp				+			
The conditions which cause corrosion and the process of corrosion and oxidisation	corrosion through surface treatments and finishes. Appreciate how oxidisation can be used when dyeing materials		\parallel	\parallel	\parallel	\parallel	\dashv		\coprod	•				Щ			\coprod	-			4	\perp				+			
The composition of some important alloys in relation to their properties and uses The physical properties of [materials],	Selecting appropriate materials	\parallel	\parallel		\parallel	\dashv	\dashv	-	H	•				\mathbb{H}	•		H	-		-	\parallel	+				+			
how the properties of materials are selected related to their uses	Knowledge of properties of materials to be applied when designing and making	\mathbb{H}	+	\parallel	+	$+\!\!\!+$	+	+	H	•	H	•	•	•			H	-	\perp	+	\dashv	+				+			
The main energy sources available for use on Earth (including fossil fuels, nuclear fuel, bio-fuel, wind, hydro-electricity, the tides and the Sun), the ways in which they																													
are used and the distinction between renewable and non-renewable sources The action of forces and how levers and	Understanding of how to choose appropriate energy sources		\parallel		\parallel	\parallel	\dashv							Ш				-			_ -	\perp				+			
gears transmit and transform the effect of forces	Knowledge of the function of mechanical devices to produce different sorts of movement, changing the magnitude and direction of forces													Ш															