

Y8 Design & Technology

Students will have chosen Design & Technology as their technology specialiam at the end of Y7. The curriculum in Y8 is designed to increase the breadth and level of challenge with regards to key knowledge and practical skills and techniques through a range of investigative, design, make and evaluation projects. Main material categories are utilised in these projects; timber, metal, smart, polymer, paper and board.

WHAT?	WHY?	HOW?	HOMEWORK:	SUPPORT:
METAL MOBILE PHONE STAND PROJECT	APPROXIMATELY 50% OF THIS PROJECT WILL ACT AS A VEHICLE FOR THE FOLLOWING KEY KNOWLEDGE:	APPROXIMATELY 50% OF THIS PROJECT WILL BE BASED UPON PRACTICAL SKILLS AND TECHNIQUES INCLUDING:		
	Production techniques and systems which include standardised design and components, just-in-time (JIT), lean manufacturing, batch, continuous, one-off and mass.	Safe working practice	A mix of Google Classroom tasks and worksheets. In the situation where this is the first project in Y8 homework will be based on Key Knowledge from the Y7 Mood-light project and the bridging project. In the situation where this project is the second or third unit of work in Y8, homework will be based upon the previous project.	A useful website for students studying Design & Technology is called 'Technology Student'. Students should type into their browser the website name and then the particular area of Design & Technology they require e.g. technology student - ferrous metals. Another useful website is bbc bitesize: https://www.bbc.co.uk/bitesize/examspecs/zb6h92p For example see links: https://www.bbc.co.uk/bitesize/guides/zv4g4qt/revision/1 https://www.bbc.co.uk/bitesize/guides/z6xqmsg/revision/2 https://www.bbc.co.uk/bitesize/guides/zdmqmsg/revision/1 https://www.bbc.co.uk/bitesize/guides/zffhsrd/revision/8 https://www.bbc.co.uk/bitesize/guides/zrrvgdm/revision/1 https://www.bbc.co.uk/bitesize/guides/zk9g4qt/revision/1 https://www.bbc.co.uk/bitesize/guides/zjkw6f/revision/3
	How to make the use of flowcharts.	Cutting metal		
	Ferrous metals, including mild steel, stainless steel and cast iron.	Shaping metal		
	Non-ferrous metals, including aluminium, copper and brass.	Drilling metal		
	Properties of materials including ductility, malleability and hardness.	Thread cutting		
	Thermoforming polymers, including acrylic.	Joining metal: Spot welding		
	Respect for different social, ethnic and economic groups who have different needs and values when identifying new design opportunities.	Joining metal: Brazing		
		IT use (Key Knowledge)		
	The main factors relating to 'Green Designs'.			
	The main factors relating to recycling and reusing materials or products.			
	Analysing a product to specification criteria such as client and user requirements, performance requirements and sustainability.			
	Development and use of a range of communication techniques and media to present the design ideas, including digital photography/media, 3D models, orthographic and assembly drawings .			
How to record and justify design ideas clearly and effectively using written techniques such as annotation.				

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GRAPHIC COMMUNICATION POLYMORPH PROJECT	APPROXIMATELY 50% OF THIS PROJECT WILL ACT AS A VEHICLE FOR THE FOLLOWING KEY KNOWLEDGE	APPROXIMATELY 50% OF THIS PROJECT WILL BE BASED UPON PRACTICAL SKILLS AND TECHNIQUES INCLUDING:	A mix of Google Classroom tasks and worksheets. In the situation where this is the first project in Y8, homework will be based on Key Knowledge from the Y7 Mood-light project and the bridging project. In the situation where this project is the second or third unit of work in Y8 homework will be based upon the previous project.	A useful website for students studying Design & Technology is called 'technologystudent.com'. Students should type into their browser the website name and then the particular area of Design & Technology they require e.g. technology student – smart materials.
	Developments in modern and smart materials including shape-memory alloys (SMAs), nanomaterials, reactive glass, piezoelectric materials, temperature responsive polymers, conductive inks.	Safe working practice Thermoforming		www.technologystudent.com
	The categorisation of the types, properties and structure of papers and boards including copier paper, cartridge paper, tracing paper, folding boxboard, corrugated board, solid white board.	CAD/CAM Assembling a product.		Another useful website is bbc bitesize:
	Properties of materials including flexibility, printability, biodegradability.	IT use (Key Knowledge and homework)		https://www.bbc.co.uk/bitesize/examspecs/zb6h92p
	All design and technological practice takes place within contexts which inform outcomes. These contexts include the properties of materials and or components, the advantages and disadvantages of materials and components and manufacturing processes and the justification of the choice of materials and components and manufacturing processes.	Various forms of communication skills and techniques.		For example see links:
	The analysis of a product takes place to the following specification criteria; function, client and user requirements, performance requirements, aesthetics and marketability.	Analytical skills and techniques.		https://www.bbc.co.uk/bitesize/guides/zjg8jty/revision/1
	The work of past and present designers and companies including Alessi and Pixar.	Graphic design		https://www.bbc.co.uk/bitesize/guides/zn67xfr/revision/1
	How to develop and use a range of communication techniques and media to present the design ideas, including freehand sketching (2D and/or 3D), annotated sketches, cut and paste techniques, digital photography/media, 3D models and computer-aided design (CAD) and other specialist computer drawing programs.			https://www.bbc.co.uk/bitesize/guides/zvkck2p/revision/4
	How to record and justify design ideas clearly and effectively using written techniques.			https://www.bbc.co.uk/bitesize/guides/zdkr97h/revision/1

WHAT?	WHY?	HOW?		
PEWTER CASTING PROJECT	APPROXIMATELY 50% OF THIS PROJECT WILL ACT AS A VEHICLE FOR THE FOLLOWING KEY KNOWLEDGE	APPROXIMATELY 50% OF THIS PROJECT WILL BE BASED UPON PRACTICAL SKILLS AND TECHNIQUES INCLUDING:	HOMEWORK:	SUPPORT:
	The categorisation of the types, properties and structure of natural and manufactured timbers including oak, mahogany, beech, balsa, jelutong, birch, ash, pine, cedar, larch, plywood, medium density fibreboard (MDF), chipboard.	CAD/CAM / 2d Design	A mix of Google Classroom tasks and worksheets. In the situation where this is the first project in Y8 homework will be based on Key Knowledge from the Y7 Mood-light project and the bridging project. In the situation where this project is the second or third unit of work in Y8 homework will be based upon the previous project.	A useful website for students studying Design & Technology is called 'technologystudent.com'. Students should type into their browser the website name and then the particular area of Design & Technology they require e.g. technology student – metal casting. www.technologystudent.com Another useful website is bbc bitesize: https://www.bbc.co.uk/bitesize/examspecs/zb6h92p For example see links: https://www.bbc.co.uk/bitesize/guides/zhyny4j/revision/1 https://www.bbc.co.uk/bitesize/guides/zvkck2p/revision/4 https://www.bbc.co.uk/bitesize/guides/zdkr97h/revision/2 https://www.bbc.co.uk/bitesize/guides/zrrvgdm/revision/1
		Shaping timber		
	Develop and use a range of communication techniques and media to present the design ideas including isometric and oblique projection, orthographic and exploded views and computer-aided design (CAD).	Pewter casting process		
	How to record and justify design ideas clearly and effectively using written techniques.	Heat treatment centre		
	Working properties – the way in which a material behaves or responds to external forces for example hardness, toughness, durability.	IT use (Key Knowledge and homework)		
	Consideration for cultural and ethical factors including avoiding offence and suitability for the intended market.			
	Techniques for quantity production – employed when making products in quantity e.g. computer-aided manufacturing (CAM).			
	Specialist techniques, tools, equipment and processes including hand tools, machinery, digital design & manufacture, drilling, cutting, abrading, use of adhesives, jointing and wastage.			
	Appropriate surface treatments and finishes that can be applied including varnishing, wax and shellac polish.			
The analysis of a product takes place to the following specification criteria; form, function, client and user requirements, performance requirements, materials and components, scale of production and cost, sustainability, aesthetics, marketability and innovation.				