Curriculum Progression – Design and Technology

Key Stage 3 introduces pupils to designing and making for a specific purpose. Pupils develop their knowledge of a wide range of materials, components manufacturing processes in order to create meaningful products. They are introduced to the design process and develop their technical knowledge, for example in Year 7 they learn about how electricity is generated and the advantages and disadvantages of different ways of generating electricity, this relates to their product as it is electrical and also broadens their understanding of environmental issues. Pupils also develop their knowledge of mechanical systems by making a note holder from mixed materials, using tools and equipment that make use of the mechanical systems they have studied, as well as collaboratively designing and building a structure when investigating structural elements. In Year 8, pupils explore the Art Deco movement as it has a distinctive aesthetic that lends itself well to jewellery, they design and make a pewter cast item of jewellery whilst learning about metals and the casting process. They then go on to design and manufacture an organiser for a specific user, this could be a teenager, an elderly person, a dog lover etc., encouraging them to conduct primary research and to use a wider range of materials and employ more manufacturing processes. Year 8 pupils continue to Year 9, the focus is on exposing pupils to a wider range of materials, components and manufacturing processes, building their knowledge for future solutions, as well as developing their knowledge of existing products and the issues surrounding truly user-centred design and considering user's backgrounds and sensitivities.

KS3	Understanding users, contexts and purpose	Generating, developing, modelling and	Planning	Practical skills and techniques	Own ideas and products	Existing products	Key events and individuals	Making products work
		communicating ideas		·				
Year 8	Pupils explore the needs and wants of	Pupils develop their	Pupils are	Pupils are able to use	Pupils are able	Pupils analyse	Pupils research a	Pupils build on their knowledge of materials
	a specific user and solve their own	sketching further,	aware of more	a wider range of tools	to evaluate	products in more	range of notable	from to produce a range of more complex
Organiser for a specific person	design problems.	leading to annotated 3D	tools and	and equipment safely,	their products	depth.	figures from the	products.
		sketching with the use	processes and	such as hand tools,	against their		world of design.	
Art De		of templates.	are able to	machine tools, metal	original	Pupils explore CAD	Some of these are	Pupils apply their maths knowledge to a
Jewell	ery contexts and analyse issues that may		select the most	casting and CAD and	specification	and CAM as new	diverse groups.	wider range of design situations.
	arise.	Pupils use user-centred	appropriate for	CAM.	and	and emerging		
		design, to generate	a range of		identify ways of	technologies. Some	Pupils explore	Pupils develop their knowledge of material
	Pupils develop their own design briefs	creative ideas and avoid	tasks.	Pupils explore the	improving them	may explore 3D	designing jewellery	properties and their impact on the design of
	and specifications in more depth.	stereotypical responses.		properties of a wider	and actively	printing.	within an Art Deco	products. They begin to use more standard
			Pupils choose	range of materials.	involve others		context. They learn	components in their products.
THE PERSON	Pupils explore more advanced factors	Pupils are introduced to	from a wider		in the testing of	Pupils complete a	about the rise and	
User-centred	such as anthropometrics when	2D CAD and use this to	range of		their products.	product disassembly.	fall of Art Deco	Pupils know how metals and polymers are
organiser	designing.	develop their ideas.	materials and				due to socio-	classified and learn about their properties.
Cafaty produc	Dunile learn about othics in design	Dupile use CAM (loser	components to				economic factors.	Dunile know how materials can be east in
Safety produc		Pupils use CAM (laser	create				Pupils learn more	Pupils know how materials can be cast in
prototype	and designing for the less able.	cutting) to add to their products and test ideas.	products.				about	moulds.
		products and test ideas.					environmental	Pupils build upon their knowledge of
							issues.	electronic systems by producing an open-
							133003.	ended prototype for a safety system.
								ended prototype for a safety system.
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Sequencing information – Pupils begin by exploring the origins and properties of metals before embarking on a metal-based project; they learn about the stock forms of metals and how they can be formed into different shapes, with a focus on casting. Pupils use the art deco movement and an introduction to design styles, leading on to allowing for more creativity. Pupils explore specific user issues and contexts and are given freedom to design whilst having the knowledge to produce the prototype in many ways. Much of the skill was developed in Year 7 and is the level of difficulty increased. Pupils are introduced to polymers and more standard components. Pupils see structural elements in practice and utilise their knowledge from Year 7, along with their knowledge of electronic systems.