

I	Year 5		Year 6		Year 7		Year 8	
Research and Design	Use research (existing products/provided examples - discuss/opinion) to inform designing L.O - Examine existing products and discuss their purpose	Y	Use research (independent, internet based) to inform designing.	Y	Use research and exploration to identify user needs to inform designing L.O: Use research to collect images that will help with designing	Y	Use research and exploration to identify and understand (explain/justify) user needs, informing designing L.O: Use research to collect images that will help with designing and explain why	Y
	Develop simple design criteria to inform the design - using F.U.M.E.S (function,user,materials, environment,safety) [consider particular individuals or groups]	Y	Analyse a design brief and explain design criteria to inform the design - using F.U.M.E.S [function,user,materials, environment,safety] [consider particular individuals or groups].	Y	Develop specifications to inform the design of functional, appealing products that respond to the needs of users - using ACCESS FM [aesthetics, cost, customer, environment; size, safety, function, materials]	Y	Develop and justify specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations - using ACCESS FM [aesthetics, cost, customer, environment, size, safety, function, materials]	Y
	L.O - Understand F.U.M.E.S to help you design		To explain the design brief using F.U.M.E.S		L.O: Write a specification in response to the design brief		L.O: Write and justify a specification in response to the design brief	
	Design functional, appealing products that are fit for purpose L.O - Design products that are fit for their user	Y	Design and communicate (annotate) functional, appealing products that are fit for purpose. To develop annotated design ideas relating to the design brief and F.U.M.E.S	Y	Use a variety of approaches to generate creative annotated ideas	Y	Use a variety of approaches to generate a range of detailed creative annotated ideas, avoiding stereotypical responses	Y
	Generate and communicate ideas through discussion, sketches and cross-sectional drawing L.O - Understand what an Isometric drawing is, (cross sections of wood)	Y	Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams To develop a chosen idea, To construct a scale plan.	Y	Develop and communicate design ideas using annotated sketches, plans and computer-based tools L.O: Develop a range of creative designs with annotation	Y	Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling , [oral and digital] presentations and computer-based tools L.O: Develop a range of creative designs with detailed annotation L.O: Recreate a product design using 3D modelling	Y
		Y	Develop prototypes . To measure, mark and cut to form a prototype.	Y	Solve design problems and understand how to reformulate problems given to them [stand-alone?] L.O: Compose a design brief and specification using ACCESS FM	Y	Identify and solve their own design problems and understand how to reformulate problems given to them [stand-alone?] L.O: Compose a design brief and thorough specification using ACCESS FM	Y
Make	Use a range hand tools provided L.O - Recognise and use the required tools correctly	Y	Use hand tools provided and explain why they are appropriate to the task.	Y	Select from [a selection] and use specialist tools, techniques, processes, equipment and machinery with some accuracy , including computer-aided manufacture L.O: Correctly select and use tools, techniques, and machinery with accuracy	Y	Select and use specialist tools, techniques, processes, equipment and machinery precisely , including computer-aided manufacture with increasing/greater independence L.O: Correctly select and use tools, techniques, and machinery with precision	Y
	Cut to a tolerance of +/- 5mm L.O - Attempt to be accurate marking out and making	Y	Make changes while making to improve quality, finish and strength - work to a tolerance of +/- 3mm . L.O: Cut and finish to a good tolerance (+/-3mm)	Y	Use machinery with accuracy, cutting and finishing closer to marking out - a tolerance of +/- 2mm L.O: Cut and finish to a small tolerance (+/-2mm)	Y	Use tools, techniques, and machinery with precision - using appropriate tools to work to minimal tolerances . L.O: Cut and finish to minimal tolerances (+/-1mm)	Y
	Use a range of materials and components, including construction materials, according to their functional properties and aesthetic qualities	Y	Select from and use a wider range of materials and components, including construction materials , according to their functional properties and aesthetic qualities	Y	Select from and use a range of appropriate materials , taking into account their properties	Y	Select from and use a wider, more complex range of materials and components , taking into account their properties	Y
Evaluate	Investigate a selection of existing products L.O - Look at existing products and discuss them	Y	Investigate and analyse a range of existing products L.O - Look at existing products and use them to pick out key design features	Y	Consider the work of past and present professionals and others to develop and broaden their understanding [designers] L.O: Analyse the work of designers to develop understanding	Y	Analyse the work of past and present professionals and others to develop and broaden their understanding [design movements] L.O: Research and present information about design movements	Y
	Evaluate their ideas and products against their own design criteria L.O - Compare your work with the design specification	Y	Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work . L.O: Evaluate outcomes against initial designs	Y	Test and evaluate their ideas against a specification, taking into account the views of intended users L.O: Evaluate a product against a specification	Y	Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users L.O: Evaluate a product against a specification and suggest improvements	Y
							Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists [timelines] L.O: Understand developments in design and technology	Y
Technical Knowledge required	Strengthen and reinforce structures L.O - Investigate how to make a product stronger with a range of fixings	Y	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures .	Y	Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions [different materials]	Y	Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions [different materials]	Y
			Understand how to use orthographic projection to plan a design across a range of view points.	Y	Understand how more advanced wood working techniques can be utilised to create more accurate/complexed products (inlay techniques)	Y	Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs] L.O: Understand how electrical and electronic systems can be powered and used in their products	Y
							Apply computing and use electronics to embed intelligence in products that respond to inputs. L.O: Apply computing and use electronics to embed intelligence in products	Y
Subject specific vocabulary	design specification, research, reinforce, stability, temporary, permanent,		production, processes, industrial, prototype, professional, Equipment vocab:		Manufacture, production, processes, industrial, Etch, prototype, professional, inlay,		CAD, Computer Aided Design, CAM, Computer Aided Manufacture, Laser cutting, etching, manufacture, production, processes, industrial, prototype, professional, safety, laminate, process, investment, industrial, mass production,	
Practical projects	Maze game		Block head		Storage box		Speaker	