LEVEL OF LEARNING THRESHOLD GRID   Year 9

DEPARTMENT/SUBJECT: **Design and Technology**

Assessment area	Developing	Secure	Excellent
Designing: Research and analysis Specification Generate ideas Develop solution	• Can write a statement which explains the design task to be solved and for who (Design Brief). • Is able to select information from sources other than those offered by the teacher and use that information when designing. • Is able to complete a Product Analysis activity of similar products with limited support from the teacher. • Is able to specify a range of criteria by which to judge the product (ACCESS FM). • Can write a specification to aid designing and making the product. • Can suggest a variety of ways in which one idea might be made with modifications and improvements.	• Can formulate her own design brief. • Is able to make decisions about what information is needed and the sources that will be used to gather it. • Can use the information collected from various sources including a product analysis to inform designing. • Designs show an understanding of function, form, safety and reliability. • Can produce a specification which identifies critical factors to be used in designing the product and also reflects the needs of the user. • Can demonstrate thinking by producing simple models of ideas.	• Is able to identify own design problem and generate a design brief to work from. • Is able select a wide range of information sources analysing what is relevant to my designing. • Is able to draw up a design specification which reflects wider issues concerning the user (such as environmental, social and moral issues) and the manufacturing of the product. • Is able to demonstrate the use of a variety of strategies to generate ideas. • Is able to generate multiple ideas around an original idea. • Is able to use ICT in a wider manner to gain information for designing including accessing databases and using spreadsheets for comparisons.
Making: Planning Complexity Finish	• Can list the tools and equipment needed before starting an activity (Short task). • Is able to plan the process as a combination of both text and images (Storyboard).	• Can demonstrate time planning of the overall project (Gantt Chart). • Is able to demonstrate calculation of the type and quantity of materials required to produce the product. (Use of spreadsheets)	• Is able to select and order materials and components so that they are available when needed (Just in time principle). • Is able to evaluate planning and made adjustment to the schedule to ensure that deadlines are met.

	• Can show evidence that the overall 'time' to be spent on each task has been considered. • Is able to suggest alternative ways of proceeding if problems arise. • Can make templates to aid marking out. • Can work with increased accuracy. E.g. Cutting to within 1mm of a line or weighing to within a few grams. • Has shown evidence that work is checked as it develops (Quality Control)	• Can prioritise the tasks involved in manufacturing the product. • Can produce a manufacturing sequence which checks the product as it develops offering alternatives if the first attempt fails (Flow diagram with Quality Control). • Can use specified hand tools to cut and form specific materials safely. • Can competently use a range of power tools including CAM to cut and form specified materials, observing health and safety and hygiene regulations. Can use CAM machines to shape and decorate materials (use of Laser cutter, Brother Sewing machine, Stika).	• Can provide reasons for altering plans or choice of materials/components as the manufacturing progresses. • Is able to plan for different ways of manufacturing the product. • Can work with tools and equipment to a high degree of precision (use of tolerances). • Can export 2D and 3D CAD files into CAM machines to assist in manufacturing. • Can produce products which are manufactured to a high level of finish.

Evaluating: **Analyse**
 	
    Testing
 	
    Impact
	• Has evaluated the product against the criteria and specification identifying what parts of the product work well and what needs to be improved.
	
	• Is able to justify reasons for selecting materials and ingredients for the making of the product.
	
	• Has planned an evaluation activity for a small group (E.g. Product Analysis, Sensory Analysis, and Product Evaluation).
		• Is able to analyse the information gathered from looking at products and apply it when designing and making.
		
		• Has sought third party opinions when evaluating the product.
		
		• Has justified the selection of materials and methods of making the product.
			• Is able to review the extent to which the product meets the requirements of the design brief and the criteria at various stages of the designs development.
			
			• Is able to identify changes which need to be made to improve the manufacturing process.

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Communication	- Can draw plans using a standard format that can be followed by others. - Can make a prototype of the design using materials to communicate the idea to someone else. - Can sketch and model alternatives to the original ideas. - Has used a computer to help model ideas.	- Is able to communicate ideas in both 2D and 3D. - Can show detail by using cutaway and exploded drawings. - Is able to apply rendering techniques using coloured pencils, markers and fine lines pens to show tone and texture in drawings. - Can use a range of ICT software appropriate to my designing such as Publisher, 2D Design or Sketchup.	- Is able to use CAD to generate geometric templates and patterns. - Is able to use CAD to model in both 2D and 3D. - Is able to use CAD to generate production drawings to a recognised standard. - Is able to use computer graphic rendering to enhance the visual presentation of ideas.