

Crest Award to be awarded in Year 7 projects

KS3 STEM	Explore (CREST Planning a Project Test, Research & Plan)	Design (CREST Planning a Project Test, Research, Plan, Design)	Manufacture (CREST Throughout the project Make and Record Data)	Evaluate (CREST Finalising the project Success and Limitations)
Mastery	<ul style="list-style-type: none"> ❑ Expectations Develop realistic design proposals as a result of the exploration of design opportunities and users' needs, wants and values. ❑ In-depth research of design movements and developments in design technology. 	<ul style="list-style-type: none"> ❑ Design and make, prototypes in response to issues, needs, problems and opportunities. ❑ Use imagination, experimentation and combine ideas when designing consider the costs, commercial viability and marketing of products. 	<ul style="list-style-type: none"> ❑ Demonstrate in practical work knowledge of how the impact of forces and stresses on materials and objects and the ways in which materials can be reinforced and stiffened. ❑ Specialist techniques and processes used to shape, fabricate, construct and assemble a high quality product. 	<ul style="list-style-type: none"> ❑ Within evaluation use refined and complex key DT terminology including those related to: designing, innovation and communication; materials and technologies; making, manufacture and production; critiquing, values and ethics.
Secure	<ul style="list-style-type: none"> ❑ Demonstrate an ability to write a design brief, A specifications from their own and others' considerations of human needs, wants and interests. ❑ 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. 	<ul style="list-style-type: none"> ❑ Use different design strategies, such as collaboration, user centered design and systems thinking, to generate initial design ideas. ❑ Technical drawing employs both formal and informal technical drawing (thumbnail sketches, cross-sectional, exploded diagrams). ❑ Options related to a variety of costings explored within designs. 	<ul style="list-style-type: none"> ❑ Select from and use a wide range of specialist tools, techniques, processes, equipment and machinery precisely. Products have a good quality professional finish. 	<ul style="list-style-type: none"> ❑ Create own evaluation questions and measurable outcomes. ❑ Collect data from target audience to aid evaluation. ❑ Evaluate costs and ascertain whether product is financially viable.
Developing	<ul style="list-style-type: none"> ❑ Use a variety of research and analysis tools (e.g. mood boards) to explore and develop ideas. Research tailored to a specific target audience. ❑ A wide range of existing products are used for analysis with a greater focus on method of production and materials used. 	<ul style="list-style-type: none"> ❑ Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, and computer-based tools. ❑ Design choices are justified and basic costings discussed. iterative design evident throughout design process. 	<ul style="list-style-type: none"> ❑ Select from and use a wider, more complex range of materials, components and take into account their properties. ❑ Use Computer-Aided Manufacture (laser cutter, cricut, 3D printers). ❑ Use appropriate and accurate marking out methods ❑ Understand efficient cutting and how to minimize waste. ❑ Surface finish considered. ❑ Record Data. 	<ul style="list-style-type: none"> ❑ Test, evaluate and refine their ideas and products against an in-depth specification, taking into account the views of intended users and other interested groups. ❑ Manufacturing diaries show evidence of evaluation at each step.
Emerging	<ul style="list-style-type: none"> ❑ Use product analysis as a tool to explore and annotate existing designs identifying strengths and weaknesses which in turn inform own design process. ❑ Understand what a target audience is and identify a target audience. ❑ Use mood boards to explore and develop ideas. ❑ Planning of project is understood. 	<ul style="list-style-type: none"> ❑ Identify and solve their own design problems and understand how to reformulate problems given to them. ❑ Use iterative design to model, evaluate and improve several times during design process by testing Thought process is evident through annotated designs. ❑ Several themes explored and aimed at particular individuals or groups. ❑ Planning of project is understood. 	<ul style="list-style-type: none"> ❑ Experimentation with a variety of techniques, tools and equipment, including Computer Aided Design (Fusion 360). ❑ Choices for final product are made in relation to design specification, chosen target audience and theme. ❑ Can select correct tools and explain functions. Manufacturing diaries feature descriptions of techniques, by recording DATA. 	<ul style="list-style-type: none"> ❑ Use checklists to evaluate progress and final product. ❑ Consider the views of others and provide constructive criticism through peer review. ❑ Use feedback from others to make improvements to work.