



Belfairs Academy

Fundamentals A Level Product Design

Component 1: Principles of Design and Technology		
Key Topics	Knowledge	Skills
<p>Topic 1: Materials</p> <p>Topic 2: Performance characteristics of materials</p> <p>Topic 3: Processes and techniques</p> <p>Topic 4: Digital technologies</p> <p>Topic 5: Factors influencing the development of products</p> <p>Topic 6: Effects of technological developments</p> <p>Topic 7: Potential hazards and risk assessment</p> <p>Topic 8: Features of manufacturing industries</p> <p>Topic 9: Designing for maintenance and the cleaner environment</p> <p>Topic 10: Current legislation</p> <p>Topic 11: Information handling, Modelling and forward panning</p> <p>Topic 12: Further processes and techniques.</p>	<p>Know a wide range of materials; including modern and smart materials, and processes used in product design and manufacture.</p> <p>Understand contemporary industrial and commercial practices applied to designing and manufacturing products.</p> <p>Have a good working knowledge of health and safety procedures, relevant legislation and ICT.</p> <p>Key historical movements and figures have on modern design thinking.</p> <p>Develop an awareness of wider issues in design and Technology</p> <p>Know mathematical and scientific principles in designing and developing Products.</p>	<p>- Use specific terminology and examples to answer short-open and open-response exam questions</p> <p>-Be able to answer extended-writing questions focused on: -analysis and evaluation of design decisions and outcomes, against a technical principle, for prototypes made by others</p> <p>-Analysis and evaluation of wider issues in design technology, including social, moral, ethical and environmental impacts.</p> <p>-Show/use maths and calculations in exam questions</p>
Component 2: Independent Design and Make Project		
Key Topics	Knowledge	Skills
<p>Part 1: Identifying and outlining possibilities for design</p> <p>o Part 2: Designing a prototype</p> <p>o Part 3: Making a final prototype</p> <p>o Part 4: Evaluating own design and prototype</p>	<p>Know how to identify and investigate a design possibility, investigate a client/end user needs, wants and values, research and produce a specification.</p> <p>Know strategies for designs and how to present design ideas, development of design idea, final design solution, review of development and final design.</p> <p>Know how to design, manufacture and realise a final prototype, including tools and equipment and including quality and accuracy measures.</p> <p>Know a range of testing and evaluation strategies for your work.</p>	<ul style="list-style-type: none"> ● Identify a problem and design context. ● Develop a range of potential solutions which include the use of CAD and evidence of modelling. ● Make and show design decisions ● Realise one potential solution through practical making activities with evidence of project management and plan for production. ● Incorporate issues related to sustainability and the impact their prototype may have on the environment ● To analyse and evaluate design decisions and outcomes for prototypes/products made by themselves and others ● Analyse and evaluate wider issues in design technology, including social, moral, ethical and environmental impacts.