Year 12 Curriculum Overview: Design & Technology; Product Design

RESPECT
COURAGE
RESPONSIBILITY
KINDNESS
RESILIENCE

	Topics/ content outline:	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	Skills Box & Acrylic Lamp 1. Marking up and routing 2. Mitre joint and sanding 3. Corel Draw and laser cutting 4. Scroll saw 5. Drilling– set up and change drill bits 6. Vacuum forming 7. OnShape CAD bracket/ 3D Print 8. Line bend acrylic 9. Assembly & 2D/3D sketching 10. Plug & Yoke process 11. Welding Steel &Standard Components 12. Core Topics- Materials, Finishes & Digital Design Manufacture	• Workshop Health and Safety – overview and induction • Using hand and machine tools • 3D construction methods in wood, metal and plastic • Sketching, drawing and CAD skills • Introduction to Core Knowledge and examination skills	• Practical making skills • Core Examination topic practice questions • Dairy of Manufacturing and Planning • 2D and 3D sketching • 2D and 3D Computer Aided Design • ½ termly examination questions 40mins	Purchase Aqa Textbook – Design & Technology Product Design by Ian Granger Resources for projects and examination Core materials are stored in Showbie. Encourage sketching practise Encourage revision for the practice exam questions. If asked, become a client for projects, answer questions and supporting the design process.
Spring Term	One Sheet Challenge w/J Carey Ltd 1. Brief and Project Plan 2.Context Analysis & Situation 3.Initial Concepts 4. Ergonomics & Anthropometrics 5. Product Disassembly & Ikea Trip 6. Design Specification 7. Product Models and prototypes 8. Carey's visit & client feedback 9. Computer Aided Design 10. Presentation models & Costing 11. Present to the Client 12. Factory Visit 13. Core topics, Maths, Feasibility Studies	• Live project with a commercial manufacturer • Developing project skills in preparation for the A level NEA • Developing expertise in 3D construction methods & commercial methods of manufacture • Develop higher level skills in sketch and CAD communication • Supporting deeper Core Knowledge and examination skills	• All NEA aspects of the project work • Creativity and originality • Advanced skills in drawing and modelling • Specific more challenging examination questions • ½ termly examination questions 40mins	Continue support with resources for projects and examination. Core materials are stored in Showbie. Encourage reading the textbook and help studying around topics with documentary watching and museum/ sites of interest to visit. Encourage active revision activities to promote long term recall for exam questions.
Summer Term	NEA and year 12 Mock Examinations 1. Develop a unique project rationale 2. Create a series of Initial Concepts 3. Complete Client, Situation and associated research investigations 4. Carry out client and user surveys 5. Construct a project plan 6. Work on original drawings, CAD and models 7. Develop the Project Specification 8. Mock examinations and feedback 9. Core topics inc Health and Safety, Design Communication and Evaluation	• Live Non Examination Assessment A Level project • Time Management of final project portfolio • Developing expertise in 3D construction methods & commercial methods of manufacture • Develop higher level skills in sketch and CAD communication • Supporting deeper Core Knowledge and examination skills	• NEA on going monitoring, peer and self-assessment of AO1 • Year 12 Mock examination – 2 1/5 hour paper with 120 marks – Technical Principles	Live Microsoft Teams Project Folios Continue support with resources for projects and examination. Core materials are stored in Showbie. Encourage reading the textbook and help studying around topics with documentary watching and museum/ sites of interest to visit. Encourage active revision activities to promote long term recall for exam questions.

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	Topics/ content outline:	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	NEA and focused examination questions 1. Conduct specific project research 2. Research materials performance 3. Product Disassembly 4. Ideation 5. 2nd/ 3rd iteration concepts 6. Client and user feedback 7. Product development 8. Core – Design methods and processes 9. Core- Design Theory 10. Core- Technology and cultural changes 11. Core- Design Processes	• Developing expertise in project management for the A level NEA • Opportunity to demonstrate advanced understanding and insight in 3D construction methods and associated materials technology • Work with nearing commercial standards and practice of sketching, drawing and CAD skills • Extending Core Knowledge and examination skills	• NEA on going monitoring, peer and self assessment AO2 & 3 • Specific more challenging examination questions practicing extended mark questions • ½ termly examination questions 40mins	Encourage active reading – Design & Technology Product Design by Ian Granger Resources for projects and examination Core materials are stored in Showbie. Monitor and encourage a proactive approach to the NEA schedule If asked, become a client for projects, answer questions and supporting the design process.
Spring Term	NEA and focused examination questions 1. Prototype development 2. CAD modelling 3. Planning Manufacture 4. Manufacturing the prototype 5. Manufacturing the prototype 6. Core- Critical analysis and evaluation 7. Core- Selecting tools, equipment and processes 8. Core- Accuracy in design and manufacture 9. Core – National and international standards 10. Maths in Product Design	• Demonstrate the discipline of industry Workshop Health and Safety • Expertly manufacturing with hand and machine tools • Master high level communication skill in compleing the NEA digital portfolio • Supporting deeper Core Knowledge and examination skills	• NEA on going monitoring, peer and self assessment AO3 • Exploring and practicing past examination papers • ½ termly examination questions 40mins	Continue support with resources for projects and examination. Core materials are stored in Showbie. Persist in encouraging reading the textbook and help studying around topics with documentary watching and museum/ sites of interest to visit. Encourage active revision activities to promote long term recall for exam questions.
Summer Term	1. Prototype Evaluation 2. Project NEA Evaluation 3. NEA DIRT 4. Finishing and Finalising NEA 5. NEA candidate declaration 6. Core- Responsible Design 7. Core- Maths in Product Design 8. Core- Design for manufacture and project management 9. Break down of past papers and likely topics 10. Final examination preparation and review for success	• Reflection upon Time Management and overall success of final project portfolio • Complete formal documentation for AQA assessment • Master independent revision and recall of Product Design curriculum • Supporting deeper examination strategies and skills in preparation for the final papers	• NEA finalisation for final A level assessment • Rehearsal of examination questions and feedback	Continue support with resources for the final examinations. Core materials are stored in Showbie. Encourage active revision activities to promote long term recall for exam questions.