

Key Stage Five Curriculum – Design and Technology Product Design – Carre’s Grammar School

Subject						
	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Year 12	<p>NEA NEA Introduction Transition Work Review Possible challenges discussed Exploring Projects Identifying Clients Research</p> <p><u>FPT's/ Skills Based Projects/</u> Metals Wasting/Shaping Casting Tapping Dieing Use of a centre lathe Metal Working Tools Metal and Wood Finishing Wood Turning Lathe</p> <p><u>Theory Work</u> Topic 1: Materials Topic 2: Performance characteristics of materials</p>	<p>NEA Drafting of Initial ideas Specific Research Generation of a Product Design Specification (PDS) Initial Ideas</p> <p><u>FPT's/ Skills Based Projects/</u> Metals Wasting/Shaping Casting Tapping Dieing Use of a centre lathe Metal Working Tools Metal and Wood Finishing Wood Turning Lathe</p> <p><u>Theory Work</u> Topic 1: Materials Topic 2: Performance characteristics of materials</p>	<p>NEA Initial Ideas</p> <p><u>FPT's/ Skills Based Projects/</u> Material Combinations Polymorph, Adhesives, Joining Methods, Standard Components Turning Finishes Abrading, Wasting Mass Production Solid Works Digital technologies, Transfer of files, Flexible manufacturing, CAD/CAM, Artificial Intelligence/Robotics</p> <p>Flexible Manufacturing systems <u>Theory Work</u> Topic 3: Processes and techniques Topic 4: Digital technologies</p>	<p>NEA Development: of initial ideas to include: CAD developments Practical developments Material and process testing</p> <p><u>FPT's/ Skills Based Projects/</u> Industrial Processes, Rotational Moulding, Blow Moulding, Injection Moulding Health & Safety Annealing, Work hardening, Normalising, Hardening & Tempering Systems & Control Mass Production Modelling/Prototypes CAD/CAM Quality Control Ergonomics/Anthropometrics</p> <p><u>Theory Work</u> Topic 5: Factors influencing the development of products Topic 6: Effects of technological developments</p>	<p>NEA Conclusion of Development Construction of Final Ideas leading into planning</p>	<p>NEA Manufacture</p>

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	Assessment Transition Work Assessment Mini Assessment - Materials & Processes		Assessment Mini Assessment – Digital Technologies, Manufacturing Processes, Smart materials Formal Assessment		Assessment Mini Assessment – Product Development & Technological Developments	
Year 13	NEA Manufacturing Diary of Making Review of Prototype against Specification	NEA Manufacturing Diary of Making Review of Prototype against Specification	NEA Evaluation and Testing of Prototype	NEA Final Folder Review and Administration Theory Work Topic 8: Features of manufacturing industries Topic 9: Designing for maintenance and the cleaner environment Topic 10: Current legislation	Theory Work Topic 11: Information handling, Modelling and forward planning Topic 12: Further processes and techniques. Student led revision – addressing areas that they feel they need support with	
	Assessment Year 13 Mock Assessment Mini Assessment – Materials & Processes		Assessment NEA Formal Assessment Mini Assessment – Manufacturing Industries - Legislations		Assessment	

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Topic 7 : Potential Hazards and Risk Assessment is inferred throughout the development and manufacturing process

Indicative Design and Technology NEA Coverage, taken from the CAB.

Year 12 Autumn 1 –

- Part 1: Identifying opportunities for design
 - Identification of a design possibility (Grid 1) (AO1 1a 9 marks)
 - Investigation of needs and research (Grid 2) (AO1 1a 15 marks)

Year 12 Autumn 2 –

- Part 1: Identifying opportunities for design
 - Identification of a design possibility (Grid 1) (AO1 1a 9 marks)
 - Investigation of needs and research (Grid 2) (AO1 1a 15 marks)
 - Specification (Grid 3) (AO1 1b 9 marks)

Year 12 Spring 3 –

- Part 2: Designing a prototype
 - Design ideas (Grid 4) (AO2 9 marks)
 - Communication of design ideas (Grid 8), (AO2 6 marks)

Year 12 Spring 4 –

- Part 2: Designing a prototype
 - Development of design ideas (Grid 5), (AO2 9 marks)
 - Communication of design ideas (Grid 8), (AO2 6 marks)

Year 12 Summer 5 –

- Part 2: Designing a prototype
 - Final design solution (Grid 6) (AO1 3 marks, AO2 6 marks)
 - Review of development and final idea (Grid 7) (AO3 1a 6 marks, AO3 1b 6 marks)

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- Communication of design ideas (Grid 8), (AO2 6 marks)

Year 12 Summer 6 –

- Part 3: Making a final prototype
 - Tools and equipment (Grid 9) (AO2 12 marks)
 - Quality and accuracy (Grid 10) (AO2 18 marks)

Year 13 Autumn 1 –

- Part 3: Making a final prototype
 - Tools and equipment (Grid 9) (AO2 12 marks)
 - Quality and accuracy (Grid 10) (AO2 18 marks)

Year 13 Autumn 2 –

- Part 3: Making a final prototype
 - Tools and equipment (Grid 9) (AO2 12 marks)
 - Quality and accuracy (Grid 10) (AO2 18 marks)

Year 13 Spring 3 –

- Part 4: Evaluating own design and prototype
 - Testing and evaluation (Grid 11) (AO3 1a 3 marks, AO3 1b 3 marks, AO3 2a 3 marks, AO3 2b 3 marks)

Year 13 Spring 4 –

- Part 4: Evaluating own design and prototype
 - Testing and evaluation (Grid 11) (AO3 1a 3 marks, AO3 1b 3 marks, AO3 2a 3 marks, AO3 2b 3 marks)