

Year 11**Theory lessons**

- Autumn term: One hour per week
- Summer term: Two hours per week

Details of Exam

- 50% of the overall GCSE.
- 2 hour paper

Timing	Unit Title	Overview	Knowledge	Assessing Understanding
Autumn 1 (Theory)	Section A: 1.5 Mechanical Devices	To develop an understanding of the function and application of a range of mechanical devices.	<ul style="list-style-type: none"> • Levers • Linkages • Cams • Followers • Gears • Pulleys and Belts 	End of unit test
Autumn 2 (Theory)	Section C: 3.4 Design Strategies 3.5 Communication of design ideas 3.6 Prototype Development	<p>To develop a deeper understanding of a range of design strategies and their application in the NEA.</p> <p>To continue to develop communication skills and use them effectively in the NEA.</p> <p>To understand the importance of prototyping.</p>	<p>How different design strategies can be applied, including:</p> <ul style="list-style-type: none"> • collaboration • user centred design • iterative design • avoiding design fixation. <p>Iteratively explore and develop ideas, using the following techniques:</p> <ul style="list-style-type: none"> • sketching • modelling • testing • evaluation to improve outcomes. <p>Develop, communicate, record and justify design ideas using a range of appropriate techniques such as:</p>	Practice questions

			<ul style="list-style-type: none"> • Freehand sketching, isometric and perspective drawing • 2D and 3D drawing • Card and computer modelling • Annotation • Exploded diagrams to show constructional detail or assembly • Working drawings: 3rd angle orthographic, using conventions, dimensions and drawn to scale • Computer based tools <p>Design and develop prototypes in response to client wants and needs.</p>	
Spring 1 (Theory)				Mock exam
Spring 2 (Theory)	Section A: 1.4 Systems approach to design	Develop an understanding of the systems approach to design.	<ul style="list-style-type: none"> • A systems approach • Inputs • Processes • Outputs • Systems diagrams 	Practice questions
Summer 1 (Theory)	Section A: 1.3 Developments in new materials Paper 1 Revision	Develop an understanding of materials created in the last 100 years and their impact on design. Focus on areas of weakness identified in assessments throughout the year.	<ul style="list-style-type: none"> • Modern materials • Smart materials • Technical textiles • Composite materials 	Practice questions Revision exercises Past papers

NEA lessons

- Autumn term: One hour per week
- Spring term: Two hours per week

Details of Non-exam assessment (NEA)

- 50% of the overall GCSE.
- Consists of: A working prototype and a concise A3 portfolio of approximately 20 pages.
- 30-35 hours of work.

Timing	Unit Title	Overview	Knowledge and skills	Assessing Understanding
Autumn 1 (NEA)	Section C: Generating design ideas	Generate a range of design ideas which meet with the design brief and specification.	<ul style="list-style-type: none"> • Communicating ideas using a range of techniques including 2D and 3D annotated sketching. • Iterative design. • User centred design. • Avoiding design fixation. • Use of research to inform design thinking. • Use of client feedback. • Evaluation of design ideas against the design specification. 	Formative feedback in line with the AQA NEA Assessment criteria.
Autumn 2 (NEA)	Section D: Developing design ideas	Develop and refine design ideas.	<ul style="list-style-type: none"> • Development: Use of formal and informal 2D/3D drawing including CAD. • Development: Use of cardboard and CAD models. • Development: Testing/trialling and experimentation with tools and processes. • Development: Research into and experimentation with materials. • Communication of design decisions informed by the development, design brief and design specification. 	Formative feedback in line with the AQA NEA Assessment criteria.

			<ul style="list-style-type: none"> ● Generating a manufacturing specification which includes an: <ul style="list-style-type: none"> ○ Orthographic projection ○ Cutting list ○ Final presentation drawing. 	
Spring 1 (NEA)	Section E: Realising design ideas	Manufacture of the final prototype.	<ul style="list-style-type: none"> ● Production of an accurate prototype, which meets with the design specification using appropriate materials/tools equipment with accuracy and care. ● Use of specialist tools, equipment and techniques which include: <ul style="list-style-type: none"> ○ shaping ○ fabrication ○ construction and assembly. ○ CAM/CNC ● Working with skill and accuracy ● Application of a suitable finish 	Formative feedback in line with the AQA NEA Assessment criteria.
Spring 2 (NEA)	Section F: Analysing & evaluating	Analysis and evaluation throughout the design process, including final product testing and evaluation.	<ul style="list-style-type: none"> ● Continuously analysing and evaluating iterative designs, considering the user and design specification. Use decisions to improve outcomes. ● Testing designs as they developed. ● Using test results to inform future design decisions. ● Testing the final prototype, including market testing. ● Analysing and evaluating the final product. 	Formative feedback in line with the AQA NEA Assessment criteria.