

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.	• 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	To develop a deeper understanding of a range of design strategies and their application in the NEA. To continue to develop communication skills and use them effectively in the NEA. To understand the importance of prototyping.	How different design strategies can be applied, including: • collaboration • user centred design • iterative design • avoiding design fixation. Iteratively explore and develop ideas, using the following techniques: • sketching • modelling • testing • evaluation to improve outcomes. Develop, communicate, record and justify design ideas using a range of appropriate techniques such as:	Practice questions

			• 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 Design and develop prototypes in response to client wants and needs.	
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.	• 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.	• 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.	• 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.	• 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.

			● Generating a manufacturing specification which includes an: ○ Orthographic projection ○ Cutting list ○ Final presentation drawing.	
Spring 1 (NEA)	Section E: Realising design ideas	Manufacture of the final prototype.	● 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: ○ 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.	● 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.