MAIDSTONE GRAMMAR SCHOOL
FOUNDED 1549

Design & Technology Curriculum Outline 2023-2024

	Term 1	Term 2	Term 3	Term 4	Term 5	
Year 13	**Unit Title**: NEA - Make **Knowledge**: Making a final prototype. **Skills**: Design and make prototypes that are fit for purpose.	**Unit Title**: NEA – Make & Evaluate **Knowledge**: Making a final prototype, evaluating own design and prototype. **Skills**: Analyse and evaluate design decisions and outcomes, including for prototypes made by themselves and others.	**Unit Title**: Exam Knowledge – Units 7-9 **Knowledge**: Safe working practices, potential hazards and risk assessment, Features of manufacturing industries, Designing for maintenance and the cleaner environment. **Skills**: Demonstrate and apply knowledge and understanding of technical principles.	**Unit Title**: Exam Knowledge – Units 10-12 **Knowledge**: Current legislation, Information handling, modelling and forward planning, Further processes and techniques. **Skills**: Demonstrate and apply knowledge and understanding of technical principles.	**Unit Title**: Revision **Knowledge**: All exam content. **Skills**: Recall, revise topics from previous years.	
	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 12	**Unit Title**: Lego Man **Knowledge**: Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture. **Skills**: Demonstrate and apply knowledge and understanding of design and making principles.	**Unit Title**: Design & Make - Speaker **Knowledge**: Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture. **Skills**: Demonstrate and apply knowledge and understanding of design and making principles.	**Unit Title**: NEA Investigate & Design **Knowledge**: Identifying and outlining possibilities for design, designing a prototype. Digital technologies, Factors influencing the development of products, Effects of technological developments. **Skills**: Identify, investigate and outline design possibilities to address needs and wants.	**Unit Title**: Exam Knowledge – Units 1-3 **Knowledge**: Materials, Performance characteristics of materials, processes, techniques and specialist tools **Skills**: Demonstrate and apply knowledge and understanding of technical principles.	**Unit Title**: NEA – Design and Develop **Knowledge**: User-Centred Design Project All design and technological practice takes place within contexts which inform outcomes. Materials, Performance characteristics of materials, Processes, techniques and specialist tools **Skills**: Design and make prototypes that are fit for purpose.	**Unit Title**: Exam Knowledge – Units 4-6 **Knowledge**: Digital technologies, Factors influencing the development of products, Effects of technological developments. **Skills**: Demonstrate and apply knowledge and understanding of technical principles.
	Term 1	Term 2	Term 3	Term 4	Term 5	

Year 11	**Unit Title**: NEA Investigate, Design **Knowledge**: Production of a range of design ideas that address the criteria in the design brief and product specification. **Skills**: Design and make prototypes that are fit for purpose.	**Unit Title**: NEA – Design **Knowledge**: Production of a range of design ideas that address the criteria in the design brief and product specification. **Skills**: Design and make prototypes that are fit for purpose.	**Unit Title**: NEA Design, Make **Knowledge**: Production of a prototype that meets the requirements of the design brief and product specification, showing a wide range of making skills with precision and accuracy. **Skills**: Design and make prototypes that are fit for purpose.	**Unit Title**: NEA Evaluate **Knowledge**: Analyse the prototype against the product specification by conducting a variety of tests under realistic conditions, to ensure fitness for purpose. **Skills**: Analyse and evaluate design decisions and outcomes, including for prototypes made by themselves and others.	**Unit Title**: Revision **Knowledge**: All exam content. **Skills**: Recall, revise topics from previous years.	
	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10	**Unit Title**: Polymers - Categorisation and use of polymers. **Knowledge**: Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. **Skills**: Develop a broad knowledge of materials, components and technologies.	**Unit Title**: Lighting – Design & Make **Knowledge**: Develop, communicate, record and justify design ideas, applying suitable techniques. **Skills**: Select from and use a wider, more complex range of materials, components and ingredients, considering their properties.	**Unit Title**: Design Contexts – User Centred Design **Knowledge**: All design and technological practice takes place within contexts which inform outcomes. **Skills**: Analyse the work of past and present professionals and others to develop and broaden their understanding.	**Unit Title**: Design Contexts – User Centred Design **Knowledge**: All design and technological practice takes place within contexts which inform outcomes. **Skills**: Analyse the work of past and present professionals and others to develop and broaden their understanding.	**Unit Title**: Games Board **Knowledge**: Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. **Skills**: Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture.	**Unit Title**: NEA - Investigate **Knowledge**: Identify the needs of the end user. **Skills**: Identify, investigate and outline design possibilities to address needs and wants.
	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 9	**Unit Title**: Desk Tidy – Design & Make Informing design decisions, critical evaluation. **Knowledge**: understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. **Skills**: develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral	**Unit Title**: 3D Printing – CAD/CAM Fidget Spinners **Knowledge**: New and emerging technologies. **Skills**: select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture.	**Unit Title**: 1 – New & Emerging Technologies 5 – Designing Principles **Knowledge**: Analyse the work of past and present professionals and others to develop and broaden their understanding. **Skills**: understand developments in design and technology, its impact on individuals, society and the environment, and the	**Unit Title**: 2 – Informing Design Decisions 4 – Material Types **Knowledge**: Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. **Skills**: use research and exploration, such as the study of different cultures, to identify and understand user needs.	**Unit Title**: Wall Planter **Knowledge**: Use different Design strategies to generate initial ideas and avoid design fixation **Skills**: develop a broad knowledge of materials, components and technologies and practical skills to develop high-quality, imaginative and functional prototypes	**Unit Title**: Robotics **Knowledge**: Programmable components & electronics. **Skills**: apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components.

	and digital presentations and computer-based tools		responsibilities of designers, engineers and technologists.			
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Year 8	**Unit Title**: Key Fob - Metals **Knowledge**: Categorisation and use of metals. **Skills**: Identify and solve design problems and understand how to reformulate problems.	**Unit Title**: Food Life Skills **Knowledge**: Understand and apply the principles of nutrition and health. **Skills**: Cook a repertoire of predominantly savoury dishes so that they can feed themselves and others a healthy and varied diet.	**Unit Title**: 3D Printing – CAD/CAM **Knowledge**: New and emerging technologies. **Skills**: Use specialist computer-aided design and manufacture tools.	**Unit Title**: 3D Printing – CAD/CAM **Knowledge**: New and emerging technologies. **Skills**: Use specialist computer-aided design and manufacture tools.	**Unit Title**: Mechanical devices **Knowledge**: Understand how more advanced mechanical systems used in their products enable changes in movement and force. **Skills**: test, evaluate and refine their ideas and products against a specification.	**Unit Title**: Mechanical devices **Knowledge**: Understand how more advanced mechanical systems used in their products enable changes in movement and force. **Skills**: test, evaluate and refine their ideas and products against a specification.
	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	**Unit Title**: Tablet Stand - Timbers **Knowledge**: Categorisation and use of timbers. **Skills**: Use specialist tools, techniques, processes, equipment & machinery.	**Unit Title**: Tablet Stand - Timbers **Knowledge**: Categorisation and use of timbers. **Skills**: Use specialist tools, techniques, processes, equipment & machinery.	**Unit Title**: Slot Toy – CAD/CAM **Knowledge**: New and emerging technologies. **Skills**: Use specialist computer-aided design and manufacture tools.	**Unit Title**: Slot Toy – CAD/CAM **Knowledge**: New and emerging technologies. **Skills**: Use specialist computer-aided design and manufacture tools.	**Unit Title**: Electronic Wearable – Electronics/Textiles. **Knowledge**: Development of modern, smart and composite materials. **Skills**: Select from a wide range of complex materials.	**Unit Title**: Electronic Wearable – Electronics/Textiles. **Knowledge**: Development of modern, smart and composite materials. **Skills**: Select from a wide range of complex materials.

Key/Legend/Notes: