



AVANTI GRANGE SECONDARY SCHOOL

Design and Technology Curriculum Map and Intent

Subjects: Design and Technology & Food Preparation and Nutrition

Design and Technology Intent:

The Avanti Grange Design and Technology curriculum instils a strong commitment to ethical, empathetic, and innovative product design. Students are encouraged to understand the historical context of design and the development and use of technology, empowering them to shape a responsible and inclusive future.

Our curriculum exposes students to diverse design and technological advancements across cultures and time, fostering a deep appreciation for human creativity. They are prompted to tackle challenges with consideration for ethical, social, and environmental factors.

Key curriculum components include:

- Historical progression of design and technology in a global context.
- Exploration of concepts like sustainable design, responsible innovation, and inclusive engineering.
- Recognising their role as responsible designers within the context of past and future developments.

Students learn a systematic approach to design and technology, including:

- Crafting purposeful design specifications from design briefs and contexts.
- Analysing past design solutions and technological advancements to inform their choices.
- Understanding the societal, environmental, and personal impacts of their decisions.
- Embracing diverse perspectives and defending their choices.

Engagement with accomplished designers and technologists guides students in structuring their own creative, ethical designs. Studying at Avanti Grange equips students to:

- Excel in design and technology assessments and other related disciplines.
- Pursue diverse careers in product design, engineering, sustainability, and entrepreneurship.
- Lead as informed, socially responsible citizens committed to positive change through innovative design practices.

KS4 Curriculum Overview:

GCSE Design and Technology will be offered to students in Year 10 and Year 11. The specialist technical principles focus for the GCSE course will be natural and manufactured boards and timbers. GCSE Design and Technology will prepare students to participate confidently and successfully in an increasingly technological world. Students will gain awareness and learn from wider influences on Design and Technology including historical, social, cultural, environmental and economic factors. Students will get the opportunity to work creatively when designing and making and apply technical and practical expertise.

The exam board that students will study their GCSE with is AQA. AQA's GCSE in Design and Technology allows students to study core technical and designing and making principles, including a broad range of design processes, materials techniques and equipment. They will also have the opportunity to study specialist technical principles in greater depth.

Students will complete a non-examination assessment in the form of a coursework portfolio which forms 50% of the overall GCSE grade. Students will design and manufacture a prototype product in response to a given design context. Students will complete a written exam which forms 50% of the overall GCSE grade. The written exam will cover knowledge and understanding of a range of core and specialist technical principles as well as designing and making principles. Cross curricular links are made between design and technology and maths and science as 15% of the examination questions will assess maths skills and 10% of the examination questions will assess science skills.

Year Group	Autumn Half Term 1	Autumn Half Term 2	Spring Half Term 1	Spring Half Term 2	Summer Half Term 1	Summer Half Term 2
Key Stage 4 (GCSE)						
Y10	Topic: Product Design skills enhancement. Students will develop their skills within ideation sketching, orthographic design display, manufacture and producing a manufacturing log. Students will further study Section 3 of	Topic: Product Design lighting project. Students will further develop their skills within considering the work of others, designing and developing, manufacturing functioning prototypes and	Topic: Product Design lighting project. Students will further develop their skills within considering the work of others, designing and developing, manufacturing functioning prototypes and	Topic: Product Design concept product project. Students will respond to a chosen design context in producing a concept product. Students will further develop their design and development,	Topic: Product Design concept product project. Students will respond to a chosen design context in producing a concept product. Students will further develop their design and development,	Topic: GCSE NEA Section 1 and 2. Research and specification. Why is this being taught? NEA contexts are released each year in June. Students will perform initial research and set out

the theory content considering key knowledge in regards to a range of materials. Why is this being taught? Students will develop their core skills covered in KS3 and consider key skills required to complete more complex projects following the design process. Why now? This project will act as a skills enhancement in order to ensure students have developed their core design and making skills. Students will also develop their understanding of materials theory content to help inform decisions in more open ended projects to follow. Will this be revisited? Yes theory content will be revisited in order to prepare for the final examination at the end of Y11. Skills developed in	evaluating and testing complete products. Students will further study Sections 4 and 5 of the theory content considering key knowledge in regards to a range of manufacturing techniques. Why is this being taught? Students will develop their core skills covered in KS3 and consider key skills required to complete more complex projects following the design process. Why now? This project will support students practice in completing a coursework style assignment. Students will follow the design cycle in developing innovative prototypes in response to a given context – a fundamental skill required for completing coursework.	evaluating and testing complete products. Students will further study Sections 4 and 5 of the theory content considering key knowledge in regards to a range of manufacturing techniques. Why is this being taught? Students will develop their core skills covered in KS3 and consider key skills required to complete more complex projects following the design process. Why now? This project will support students practice in completing a coursework style assignment. Students will follow the design cycle in developing innovative prototypes in response to a given context – a fundamental skill required for completing coursework.	making and modelling skills. Students will display their concept product through prototype modelling and study graphic design techniques. Students will further study Sections 1 and 2 of the theory content considering new and emerging technologies. Why is this being taught? Students will bring together developed skills in producing a project that mimics GCSE coursework. Feedback will be provided to students to support independent practice when completing the NEA. Why now? This project will support students practice in completing a coursework style assignment. Students will follow the design cycle in developing innovative prototypes in	making and modelling skills. Students will display their concept product through prototype modelling and study graphic design techniques. Students will further study Section 6 and 7 of the theory content considering design strategies and specialist processes. Why is this being taught? Students will bring together developed skills in producing a project that mimics GCSE coursework. Feedback will be provided to students to support independent practice when completing the NEA. Why now? This project will support students practice in completing a coursework style assignment. Students will follow the design cycle in developing innovative prototypes in	specifications for their NEA project. Why now? Students follow the design process in completion of their NEA project. These initial sections will inform the design and make sections of the project. Will this be revisited? Yes, students will regularly revisit their research and specification sections of their NEA to inform their design and manufacture. This is a fundamental section of the design process.
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	following the design process will be revisited throughout coursework completion from the end of Y10.	Will this be revisited? Yes theory content will be revisited in order to prepare for the final examination at the end of Y11. Skills developed in following the design process will be revisited throughout coursework completion from the end of Y10.	Will this be revisited? Yes theory content will be revisited in order to prepare for the final examination at the end of Y11. Skills developed in following the design process will be revisited throughout coursework completion from the end of Y10.	response to a given context – a fundamental skill required for completing coursework. Will this be revisited? Yes theory content will be revisited in order to prepare for the final examination at the end of Y11. Skills developed in following the design process will be revisited throughout coursework completion from the end of Y10.	response to a given context – a fundamental skill required for completing coursework. Will this be revisited? Yes theory content will be revisited in order to prepare for the final examination at the end of Y11. Skills developed in following the design process will be revisited throughout coursework completion from the end of Y10.	
Y11	Topic: NEA coursework design ideation and development. Re-cap and revision of core technical principles. Why is this being taught? This topic informs the prototype product development in response to the initial context and brief. Students further re-cap core technical principles in order to prepare	Topic: NEA coursework design ideation and development. Re-cap and revision of core technical principles. Why is this being taught? This topic informs the prototype product development in response to the initial context and brief. Students further re-cap core technical principles in order to prepare	Topic: NEA coursework prototype manufacture. Re-cap and revision of specialist technical principles. Why is this being taught? This topic allows students to manufacture their prototype product in response to the initial context and design brief. Students further re-cap specialist technical principles	Topic: NEA coursework review and evaluation. Re-cap and revision of designing and making principles. Why is this being taught? This topic allows students to review the success of the manufactured prototype product and evaluate key features of the design process. Students further re-cap designing and	Topic: Written examination preparation. Assessment skills and key content. Why is this being taught? This topic will allow students to further apply key knowledge and understanding of core, specialist and designing and making principles in examination format to prepare for the final written examination.	

	for mock exams and the final written examination. Why now? These topics follow the design ideation and development section of the design process. Will this be revisited? Design ideas and development will shape the future manufacturing process of the final prototype product.	for mock exams and the final written examination. Why now? These topics follow the design ideation and development section of the design process. Will this be revisited? Design ideas and development will shape the future manufacturing process of the final prototype product.	in order to prepare for the final written examination. Why now? These topics follow the product manufacturing section of the design process. Will this be revisited? The final prototype and manufacturing process will be reviewed in the evaluation section of the NEA coursework	making principles in order to prepare for the final written examination. Why now? These topics follow the review and evaluation section of the design process. Will this be revisited? NEA coursework documents will be reviewed and finalised before submission.	Why now? Students will finalise their studies of GCSE design and technology in preparation for the final written examination in the summer exam series. Will this be revisited? Content covered will be revisited in answer to a range of examination questions.	
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