

KS4 Long Term Plan 2022-2023

Subject: Design and Technology

Exam Board: Edexcel



Curriculum Statement of Intent

The Design and Technology Department aims to allow students to exercise their creativity through designing, making and evaluating. Skills are taught and underpinned with theoretical knowledge of the subject to allow students to problem solve and take on design challenges. Skills are based on national curriculum guidance which are revisited and developed as students move through KS4 and KS5 exam specification. This approach is integral to both Product Design and Food Technology.

Problem solving, research, analysis, design, making, resilience, planning and innovation are all vital parts of the design, make and evaluate process and key skills students can bring with them to all aspects of their lives. Giving students the opportunity to apply knowledge and skills learnt across the curriculum helps to instil a love of the subject and bring their learning to life and provide aspirational future pathways.

Curriculum Statement of Implementation

KS3 Projects are designed to introduce students to the workshops and kitchen. Students are able to develop key skills and knowledge which will become the foundation for further study of the subject and prepare students for studying Design Technology and Food to GCSE and A-Level, as well as fostering enjoyment and developing skills, which they will use throughout life. Students are taught in a three part rotation with 2 50 minute lessons per week with the opportunity to attend enrichment clubs.

KS4 projects build on the skills and knowledge established at KS3 these projects are taught alongside 1 theory lesson a week. The initial focus KS4 projects is to prepare students for the NEA.

KS5 students are set their NEA which brings in all of the key elements of Design and Technology; Problem solving, Research, Analysis, design, make, resilience, planning and innovation. Once again this project based work is underpinned with theory lessons which take place two lessons a week for the entirety of the course.

To allow students to access all elements of Design and technology we have specific equipment over five classrooms including; two workshops, two computer rooms and a food room. Students are able to experience a range of workshop equipment alongside CAD software, laser cutting and 3D printing. The food rooms are equipped with all of the items needed for developing the skills within the subject. These skills encourage independent problem solving at KS4 and KS5.

All teaching of DT should follow the design, make and evaluate cycle. Each stage should be supported with technical knowledge. The design process should be rooted in real life, relevant contexts to give meaning to learning. While making, children should be given the knowledge to choose the right equipment to complete a task.

Term	Topics Covered (Date completed by and number of lessons)	Skills/AOs/interleaved content	Assessment (date and nature of assessment)
Yr 10	<u>Project:</u> Stool Project AO4 Demonstrate and apply knowledge and understanding of: <ul style="list-style-type: none"> ● technical principles ● designing and making principles <u>Theory</u> Drawing: Isometric, orthographic, oblique, 1 point, 2 point	Timber work skills Timber joints	Record of progress style pages Technical Drawing Evaluation NEA style page End of half term Theory Test
Yr 10	<u>Project:</u> Children's play area AO2 Design and make prototypes that are fit for purpose <u>Theory</u> New and emerging technology The internet of things Production methods Energy and electricity	Brief analysis Development Designing Design for manufacture LCA	Brief analysis NEA style page Development NEA style page Idea Review End of half term Theory Test
Yr 10	<u>Project:</u> Pewter Casting AO4 Demonstrate and apply knowledge and understanding of: <ul style="list-style-type: none"> ● technical principles ● designing and making principles <u>Theory</u> Polymers Gears Linkages and levers Designers and companies	Metal work skills Timber joints Casting Production methods Sustainability	Sketching NEA Style page Initial Ideas NEA Style Page Metal Practical Test in Year 10 written exam week
Yr 10	<u>Project:</u> Small Animal Habitat AO1 Identify, investigate and outline design possibilities to address needs and wants AO2 Design and make prototypes that are fit for purpose	Brief Analysis Research Designing/sketching Timber work skills Timber joints	Brief analysis NEA style page Designs NEA style page Development models End of half term Theory Test

Yr 10	<p><u>Project: Garden Tool Project with joint box</u></p> <p>AO2 Design and make prototypes that are fit for purpose</p> <p>AO4 Demonstrate and apply knowledge and understanding of:</p> <ul style="list-style-type: none"> • technical principles • designing and making principles 	<p>Metal work skills</p> <p>Wood lathe skills</p> <p>Metal lathe skills</p> <p>Designs</p> <p>Practical</p> <p>Mechanical/physical properties</p>	<p>Record of progress style pages</p> <p>Technical Drawing</p> <p>Evaluation NEA style page</p> <p>Brief analysis NEA style page</p> <p>Designs NEA style page</p> <p>Development models</p> <p>Technical Drawing</p>
Yr 10	<p>Joint Box for garden tool.</p> <p>AO2 Design and make prototypes that are fit for purpose</p> <p><u>Theory</u></p> <p>Timbers; Types sustainability, fittings</p>		<p>End of half term Theory test</p>
Yr 10	<p><u>Project: Contextual challenge</u></p> <p>AO1 Identify, investigate and outline design possibilities to address needs and wants</p> <p><u>Theory</u></p> <p>Mechanical and physical properties</p> <p>Design for manufacture</p> <p>LCA</p> <p>Isometric Drawing</p> <p>Papers and boards</p> <p>Polymers</p>	<p>Brief Analysis</p> <p>Research</p> <p>Designing/sketching</p>	<p>Designs NEA style page</p> <p>Practical</p> <p>End of half term Theory Test</p>
Yr 11 Autumn 1	NEA	NEA	Test in Year 11 Exam week
Yr 11 Autumn 2	NEA	NEA	NEA
Yr 11 Spring 1	Revision	Revision key areas picked up in exam week	PPE test?
Yr 11 Spring 2	Revision	Revision	In class revision test
Yr 11 Summer 1	Revision	Revision	In class revision test