

# KS4 Long Term Plan 2020-2021

**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 and making. Skills are taught and underpinned with theoretical knowledge of the subject to allow students to problem solve and take on design challenges. Skills are taught, revisited and built on as students move through the school. This approach is integral to both Product Design and Food Technology.

Problem solving, Research, Analysis, resilience, planning and innovation are all vital parts of the design and make 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.

## 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. Students are taught in a three part rotation with 2 50 minute lessons per week.

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, 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 delivery of the subject.

All teaching of DT should follow the design, make and evaluate cycle. Each stage should be rooted in technical knowledge. The design process should be rooted in real life, relevant contexts to give meaning to learning. While making, children should be given choice and a range of tools to choose freely from.

<b>Term</b>	<b>Topics Covered</b> (Date completed by and number of lessons)	<b>Skills/AOs/interleaved content</b>	<b>Assessment</b> (date and nature of assessment)
Yr 10 Autumn 1	<u>Project:</u> Contextual challenge AO1 Identify, investigate and outline design possibilities to address needs and wants <u>Theory</u> Mechanical and physical properties Design for manufacture LCA Isometric Drawing Papers and boards Polymers	<b>Brief Analysis</b> <b>Research</b> <b>Designing/sketching</b>	<b>Brief analysis NEA style page</b> <b>Designs NEA style page</b> <b>Development models</b>  <b>End of half term Theory test</b>
Yr 10 Autumn 2	<u>Project:</u> Pewter Casting <b>AO2</b> Design and make prototypes that are fit for purpose  <u>Theory</u> Timbers; Types sustainability, fittings	<b>Designs</b> <b>Practical</b>  <b>Mechanical/physical properties</b>	<b>Designs NEA style page</b> <b>Practical</b>  <b>End of half term Theory Test</b>
Yr 10 Spring 1	<u>Project:</u> Children's play area <b>AO2</b> 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	<b>Brief analysis</b> <b>Specification</b> <b>Designing</b>  <b>Design for manufacture</b> <b>LCA</b>	<b>Brief analysis NEA style page</b> <b>Specification NEA style page</b> <b>Idea Review</b>  <b>End of half term Theory Test</b>
Yr 10 Spring 2	<u>Project:</u> Garden tool and box <b>AO4</b> Demonstrate and apply knowledge and understanding of: ● technical principles ● designing and making principles <u>Theory</u> Polymers Gears Linkages and levers Designers and companies	<b>Metal work skills</b> <b>Timber joints</b> <b>Lathe</b>  <b>Production methods</b> <b>Sustainability</b>	<b>Practical</b>  <b>Test in Year 10 written exam week</b>
Yr 10 Summer 1	<u>Project:</u> Garden tool and box cont. <b>AO4</b> Demonstrate and apply knowledge and understanding of: ● technical principles ● designing and making principles <u>Theory</u> Drawing; Isometric, orthographic, oblique, 1 point, 2 point	<b>Metal work skills</b> <b>Timber joints</b> <b>Lathe</b>	<b>Evaluation NEA style page</b>  <b>Theory test recap year</b>
Yr 10 Summer 2	Starting NEA	<b>NEA</b>	<b>NEA</b>

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