

## Design Technology Overview (KS3)

Year	Year 7 (September 2020 onwards)		
<b>Foci</b>	Students will spend year 7 getting to know the tools and machinery in the workshop and learning the various rules and regulations around health and safety and safe practise. As an introduction to the subject they will carry out three separate designs and make projects, each designed to nurture different skill sets that will be helpful as they progress into year 8 DT and year 9 engineering.		
<b>Time</b>	7 Hours (14 weeks)	6 Hours (12 weeks)	6 Hours (12 weeks)
<b>Project</b>	Totem Tower	Egg Holder	Car Race
<b>Subject</b>	Resistant Materials	Product Design	Engineering
<b>Key Idea</b>	Introduction to the workshop	Introduction to CAD/CAM	The iterative design cycle
<b>Spec. Ref</b>	DB1, DB9, DB12, MB1, MB6, MB7, MB9, EA2, EA4	DA2, DB1, DB4, DB10, MB10, MB9, EA3, EA5	DA3, DA9, DB6, MA7, MB1, MB2, MB11, EA2, EA4
<b>Driving Question</b>	What tools and machines are available to me in Design Technology?	How can I design and make an egg holder with the given equipment and materials?	How can my car design cover the greatest distance in the shortest time?
<b>Topics</b>	Health and Safety Designing Team work Timbers Workshop tools Workshop machinery	Health and Safety Thermosets and thermoplastics CAD software (OnShape) CAM technology (laser cutter) Isometric drawing Working with plastics	Health and Safety Design groups Design engineering Aerodynamics Modelling ideas Test and evaluate
<b>Assessment</b>	End of Project/term assessment and feedback factored in to planning for each project, feeding forward from one to the next. Regular teacher and peer formative assessment.		

Year	Year 8 (September 2020 onwards)		
<b>Foci</b>	Students will spend year 8 building on the skills that they have developed already in year 7. The projects will be more complex and will require a greater level of designing and creative thinking. Students will be introduced to more processes and design ideas in preparation for year 9 when students have the option of taking Engineering as one of their choices.		
<b>Time</b>	7 Hours (14 weeks)	6 Hours (12 weeks)	6 Hours (12 weeks)
<b>Project</b>	Mini Skateboard	Pitch and putt board	Phone Stand
<b>Subject</b>	Resistant Materials	Product design	Engineering
<b>Key Idea</b>	Mould making and laminating	Further CAD skills	Primary Research
<b>Spec. Ref</b>	DA1, DA10, DB5, DB3, DB10, MA7, MB8, MB9, EA1	DA6, DB2, DB4, DB6, DB9, MA6, MB3, MB5, MB10, EA2, EA4	DA4, DA8, DB7, DB10, DB2, DB9, MA2, MA5, MB7, MB10, EA5, EB2
<b>Driving Question</b>	How can I modify materials in order to improve performance?	Can I/we design better when working as part of a team?	How well can I design and make something for an intended user?
<b>Topics</b>	Health and Safety Orthographic drawings CAD/CAM Writing a specification list Modifying materials (Laminating) Logo design Google Sketchup (skate park design)	Working to themes Design strategies (team work) CAD/CAM Joining materials Surface design (CAD) Surface finishes Peer evaluation	Primary research (data collection) Research (existing products) Ideas generation Annotation Card modelling CAD/CAM work Planning
<b>Assessment</b>	End of Project/term assessment and feedback factored in to planning for each project, feeding forward from one to the next. Regular teacher and peer formative assessment.		

Year	Year 9 (September 2020 onwards)					
<b>Foci</b>	Year 9 is a transition for students moving forward in to their Engineering technical awards. The year will be largely practical with 6 different design and make projects running through the year. Each project is designed to introduce students to different aspects of the engineering curriculum and will have a series of taught theory sessions so that students are aware of the style of learning required at an early stage.					
<b>Time</b>	7 Weeks (14 Hours)	7 Weeks (14 Hours)	6 Weeks (12 Hours)	6 Weeks (12 Hours)	6 Weeks (12 Hours)	6 Weeks (12 Hours)
<b>Project</b>	Pewter Pendant	Passive Amp	Door Hook	Screwdriver	Headphone wrap	Pizza Cutter
<b>Subject</b>	Engineering	Engineering	Engineering	Engineering	Engineering	Engineering
<b>Spec. Ref</b>	DA2, DA3, DB2, DB4, DB9, MA7, MB6, MB9, MB10, EA1, EA3	DA2, BB2, DB4, MA1, MA4, MA6, MA7, MA8, MB2, MB3, MB9, MB10, EA2, EA4	DA3, DB9, MA1, MA4, MA6, MA7, MB1, MB2, MB9, EA1, EA3	DA1, DB2, MA1, MA4, MA7, MB2, MB3, MB9, MB10, EA2, EA4	DA1, DA3, DB2, DB4, DB9, MA1, MA4, MA6, MA7, MA8, MB6, MB9, MB10, EA1, EA3, EA5	DA1, DA2, DA4, DB5, DB9, MA1, MA4, MA6, MA7, MA8, MB1, MB2, MB9, EA2, EA4, EA5
<b>Driving Question</b>	How can I cast pewter to produce a piece of jewellery?	How can I Design something that amplifies music without using electricity?	How can I shape and join metals using the workshop?	What is a lathe and how can I use it to produce objects to high tolerances?	How can I best use CAD/CAM software to improve my ideas and the finish of the things that I make?	Can I redesign an existing object in order to improve it in some way?
<b>Topics</b>	Introduction Material properties Metals - Casting CAD/CAM Product analysis Ideas generation Exploded drawings Job sheets Finishing metals Evaluating designs	Plastics Composite materials Smart materials - Reverse engineering Ideas generation Orthographic drawing CAD/CAM Milling machines Job Sheets Joining materials Evaluating and testing (measure loudness)	Surface finishes Testing materials - Working with metals Joining metals Orthographic drawings Tolerances Job sheets GANTT charts Surface finishes 3D Cad Drawings Physical testing QC evaluation	H&S Risk assessments H&S signage H&S Data sheets and COSHH - Introduction to the lathe Laser cut components Joining plastics Cutting lists Finishing plastics 3D CAD drawings Tolerances Physical testing QC evaluation	Bridges Scyscrapers The automobile - Specification list Ideas generation Modelling ideas Cutting plastics by hand Finishing plastics Laser cutting plastics Task sequencing Testing and evaluating Testing against specifications	Aeroplanes The iphone - Reverse engineering 3D modeling Iterative design cycle Joining dissimilar materials Exploded drawings Diary of making Maka/asses/redesign CAD orthographic Product testing Product comparison
<b>Assessment</b>	Half termly summative assessment to be carried out by lead teacher and to be fed back to students. Formative assessment to be ongoing throughout sessions and projects. Two written exams to be completed, one at the half way point and one at the end of the year to assess the subject knowledge of each student. Many opportunities for peer review and client feedback. Quality control will be embedded into project work.					



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**CURRICULUM OVERVIEW - Long term plan**