DT &E	**Subject Intent**	• We aim to prepare pupils to go to the University or Career of their choice by offering an array of challenging and current projects that cross multiple disciplines in Design Technology and Engineering. • We will teach pupils to work with a broad range of materials, technology and develop practical skills to create high quality, imaginative and functional solutions to modern day problems. • Our pupils will learn about and challenge issues around; sustainability and the environment; society and groups of people; ethical design and impact; health and nutrition. • We will provide students with rich learning experiences so that students will have the confidence and expertise to explore and take risks to stretch the development of their own designs. • To develop creative and critical thinking. • To explore the full extent in which an individual can have a positive impact on society and understand the needs of others. • Challenge 'throw away' culture by gaining a deeper insight into the making process and building connections through hand-made products. • Develop confidence in communicating and executing your own ideas.
	Narrative KS3	• During KS3 students will tackle a range of different 'Design', 'Design & Make' and 'Make' projects to experience the role of a 'Designer', a 'Designer Maker' and an 'Engineer. They will work with a range of materials such as modelling materials, timber & manufactured boards, metal and textile. They will use traditional and modern technologies to solve design problems and communicate their solutions. • In year 7 pupils will tackle a design problem to improve safety in schools for young people, complete an introductory project and use CAD modelling to design a form of disinfectant dispenser. • In year 8 pupils will design a solution to an architectural brief set by RIBA, to bring more green spaces into people's daily commute, tackle a more challenging woodwork project aimed at decreasing food and model an engineering project about renewable energy. • In year 9 students will gain more of an idea about what KS4 will be like by tackling more open design problems in Autumn and Spring. In Autumn students will work for a client to collaboratively design and manufacture a batch of products to improve organisation of lessons in school. In Spring they will complete a mini-NEA based on inclusive design before they select their options for KS4. In the Summer students will get their first experience working with metal in a jewellery design project.

	Narrative KS4	• KS4 will continue to tackle 'Design, 'Design & Make' and 'Make' projects but with more challenge and a wider range of materials and processes. • Year 10 lessons will be split between the classroom and the practical spaces to allow focussed lessons of theoretical knowledge and practical sessions. The theory lessons will follow a familiar routine that students experience in other subjects to allow ample time to cover the content on the AQA specification. The practical sessions will start by focussing on skills by completing a series of short projects that will also cover much of the theory knowledge about materials, properties and manufacturing processes. • During the Spring term students will complete another mini NEA but with more freedom to navigate their way from problem to solution. Time will be dedicated to deeply evaluating the NEA for students to reflect on their experience before starting the real thing. Theory lessons will continue during this term. • In the Summer of Year 10 students will begin their GCSE NEA project. Theory lessons will continue during this term.
	Narrative KS5	• KS5 will carry on tackling 'Design, 'Design & Make' and 'Make' projects but with more challenges and a wider range of materials and processes. There will be a greater focus on independent learning as well as problem solving challenges designed to facilitate learning key technical vocabulary • Year 12 lessons will be split between the classroom and the practical spaces to allow focussed lessons of theoretical knowledge and practical sessions. The theory lessons will follow a familiar routine that students experience in other subjects to allow ample time to cover the content on the AQA specification. The practical sessions will start by focussing on skills by completing a series on short projects that will also cover much of the theory knowledge about materials, properties and manufacturing processes that will develop the skills necessary to successfully complete the NEA in year 13 • During the Spring term in year 12 students will complete another mini NEA but with more freedom to navigate their way from problem to solution. Time will be dedicated to deeply evaluating the NEA for students to reflect on their experience before starting the real thing. Theory lessons will continue during this term. • In January of Year 12 students will begin their A-Level NEA project. Theory lessons will continue during this term

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

	Aerodynamic car project: Research	*Aerodynamic car project: Design and make*	*Aerodynamic car project: Test and evaluate*	*Pinball game: Research*	*Pinball game: Design and make*	*Pinball game: Test and evaluate*
Y7	*Knowledge: Aerodynamics, forces (drag, thrust), design of cars.* *Skills: Secondary research, sketching ideas.*	*Knowledge: Suitable materials, shaping techniques, motion.* *Skills: Marking out, cutting, sanding, assembling.*	*Knowledge: Scientific testing methods, speed/time tests.* *Skills: Testing using ramps or tracks, evaluating results, suggesting improvements.*	*Knowledge: levers, forces, game design, user centred design* *Skills: Secondary research, sketching ideas.*	*Knowledge: Suitable materials, shaping techniques, joining methods.* *Skills: Marking out, cutting, sanding, assembling.*	*Knowledge: Scientific testing methods, function over form.* *Skills: Testing using different users,evaluating results, suggesting improvements.*
Y8	Architecture project: CAD and make	Architecture project: Make and Evaluate	Wind energy project: Research and make	Wind energy project: Make, test and evaluate	E-Textiles: Research and make	E-Textiles: Make, test and evaluate
	Knowledge: Structures, materials, architectural styles, scale. Skills: 2D/3D CAD (e.g. Tinker CAD), cutting, gluing, accuracy	*Knowledge: Evaluation criteria, function vs. form, sustainability.* *Skills: Peer/self-assessment, written evaluation, improvement suggestions.*	*Knowledge: Renewable energy, turbines, biomimicry, sustainability.* *Skills: Constructing a model turbine, creating blades inspired by biomimicry.*	*Knowledge: Wind mechanics, gear systems. How to test functionality.* *Skills: Testing, data recording, evaluating performance.*	*Knowledge: Electronic components, textiles materials, electronic circuit symbols.* *Skills: Hand sewing techniques, creating and testing a circuit, creating an electronic textiles product.*	*Knowledge: Electronic components, textiles materials, electronic circuits.* *Skills: Testing a circuit, evaluating the e-textiles product against design brief.*
Y9	Lamp Project: Electronics and research	Lamp Project: CAD and Make	Lamp Project: Make and evaluate	Desk tidy Project: Research and Design	Desk tidy Project: Make and iterate	Desk tidy project: Test, evaluate and feedback from client
	Knowledge: Circuits, components (resistors, LEDs, switches), materials. Skills: Soldering, assembling circuits, CAD design for enclosure	Knowledge: Circuits, components (resistors, LEDs, switches), materials. Skills: Soldering, assembling circuits, CAD design for enclosure	Knowledge: Evaluation methods, client feedback importance. Skills: Gathering and using feedback, final evaluation writing.	Knowledge: Desk organisation needs, client needs. Skills: Ideation, user interviews, sketching.	Knowledge: Making processes, iterative design. Skills: Prototype-making, testing, improving designs	Knowledge: Evaluation methods, client feedback importance. Skills: Gathering and using feedback, final evaluation writing.
	Health and safety	Hand skills	CAD and making skills	CAD and making skills	NEA +	NEA +

Y10

	Knowledge: Workshop rules, risk assessment, hazard symbols. Skills: Safe use of tools and equipment.	Knowledge: Properties of woods, metals, polymers. Skills: Sawing, drilling, sanding, joining methods.	Knowledge: 2D Design, materials used with CAM. Skills: Using software (e.g., 2D Design), laser cutting, CNC.	Knowledge: 2D Design, materials used with CAM. Skills: Using software (e.g., 2D Design), laser cutting, CNC.	Knowledge: Iterative design process, design briefs. Skills: Portfolio creation, developing design proposals.	Knowledge: Iterative design process, design briefs. Skills: Portfolio creation, developing design proposals.
Y 11	NEA+	NEA+	Maths in DT	Revision		
	Knowledge: Full NEA structure (Investigation, Design, Make, Evaluate). Skills: Research, CAD, prototyping, written analysis, practical making	Knowledge: Full NEA structure (Investigation, Design, Make, Evaluate). Skills: Research, CAD, prototyping, written analysis, practical making	Knowledge: Scale, ratios, area/volume, cost calculation. Skills: Applying maths to product design and manufacture.	Knowledge: Core technical principles, specialist technical principles. Skills: Exam practice, knowledge recall, extended writing.		
Y12	Prototyping and design skills	Analysis and evaluation skills	NEA+	NEA+	NEA+	NEA+
	Knowledge: Design iterations, human factors, commercial manufacturing. Skills: Model making, sketching, CAD.	Knowledge: Specification points, user testing. Skills: Detailed evaluations, testing prototypes.	Knowledge: Industrial and commercial practices, environmental and social impact. Skills: Project management, technical drawing, advanced making.	Knowledge: Industrial and commercial practices, environmental and social impact. Skills: Project management, technical drawing, advanced making.	Knowledge: Industrial and commercial practices, environmental and social impact. Skills: Project management, technical drawing, advanced making.	Knowledge: Industrial and commercial practices, environmental and social impact. Skills: Project management, technical drawing, advanced making
Y13	NEA+	NEA+	Revision	Revision		
	Knowledge: Industrial and commercial practices, environmental and social impact. Skills: Project management, technical drawing, advanced making.	Knowledge: Industrial and commercial practices, environmental and social impact. Skills: Project management, technical drawing, advanced making.	Knowledge: A-level exam content (technical principles, designing & making principles). Skills: Essay writing, timed assessments, product analysis.	Knowledge: A-level exam content (technical principles, designing & making principles). Skills: extended Q writing, timed assessments, product analysis.		