KS3 Design and Technology and KS4 GCSE 3D Design

Curriculum Intent

Our Design and Technology curriculum is built around developing knowledge, confidence, and practical skills that prepare students for life beyond the classroom. Through Design and Technology, students are encouraged to engage positively with the designed and manufactured world around them, gaining an understanding of how products and systems are created, developed, and produced.

Students learn how to generate and refine innovative ideas, communicating their designs through both traditional drawing techniques and modern digital technologies. We take pride in providing hands-on learning experiences across a wide range of specialist areas, including graphic communication, textiles, woodwork, metalwork, and mechanical systems.

Our purpose-built workshops and dedicated teaching environments enable students to develop technical competence, creativity, and problem-solving skills in a safe and supportive setting. Guided by experienced specialist teachers, students grow in confidence and resilience as they design, make, and evaluate products, equipping them with valuable skills for further education, employment, and everyday life.

Year	Term	Topic	Summary	Skills and Knowledge
Year 7 1 LESSON PER FORTNIGHT				
Year 7	Autmn 1	Accuracy	In this topic, students learn the importance of accurate measurement and how to apply these measurements when drawing two-dimensional shapes.	• Understanding different measurements. • Drawing accurate length lines using a ruler properly. • Using rulers to draw accurate 2D shapes to specific measurements.

			They develop confidence in creating precise drawings and presenting design ideas clearly. Students also explore colour theory and rendering techniques, using colour, tone, and shading to enhance their work and communicate their ideas effectively.	• Team building and problem-solving task applying measurements and drawing.
Year 7	Autumn 2	Narrowboat Project Introduction	This term, students will begin their first major design project, introducing them to the Design Cycle and how it is used to develop successful products. The project brief challenges students to design and make a	• Introduction to the design cycle and how it is used within a successful project. • Exploration of four different designers work that students will be using to inspire their own work. • Initial design ideas of narrowboats basesd on the introduced designers.

			model narrowboat inspired by the work of a chosen designer. Throughout the project, students will explore a range of designers, analyse existing products, and use research to inform their own ideas. They will develop creative thinking and design skills through initial sketching, design development, and decision-making, before making a polymer based narrowboat within the practical workshop.	• What prototypes are and how they are used within the design process. • Health and safety within the workshop. • Simple hand tools to make a polymer narrowboat prototype.

Year 7	Spring 1 & 2	Polymer Narrowboat Final Piece	This term, students will develop their final narrowboat design using mood boards and inspiration from their chosen designer. They will refine and present their ideas on paper before carefully transferring and painting their designs onto the polymer prototypes they have created in the workshop. At the end of the project, students will evaluate their work, reflecting on their design decisions, practical skills, and overall progress throughout the design process.	• Mood board creation based on the chosen designer's work. • Final technical drawing of design. • Painting skills workshop and layering. • Project evaluation.

Year 7	Summer 1 & 2	Woodwork Narrowboat	This term, students will explore the properties of wood and learn the practical skills required to manufacture a high-quality wooden narrowboat pencil holder. Working in the workshop, they will develop confidence in a range of woodworking techniques, including sawing, drilling, dowel making, joint construction, chiselling, and sanding. Through these hands-on experiences, students will gain an understanding of safe working practices, precision manufacturing, and the importance of quality	• Recap of health and safety and introduction to health and safety passports. • Use of templates and drawing tools to accurately mark out woodwork. • Use of tenon saw to shape woodwork. • Use of Thompson file to sand down woodwork to create a high-quality finish. • The making of dowels and using dowl markers to create a successful dowel joint to create the narrowboat shape. • The safe use of a chisel and mallet to create a rubber well in the hull of the boat. • Use of a Pillar Drill to make the holes for the pencils to go into. • Evaluation of skills and stages of woodwork project.

			craftsmanship in producing a finished product.	
Year 8 2 LESSONS PER FORTNIGHT				
Year 8	Autumn 1	Oblique and Isometric Tecnical Drawing	This term, students will build on the accuracy and drawing skills developed in Year 7 by learning advanced technical drawing techniques. They will be introduced to both oblique and isometric drawing, gaining an understanding of how three-dimensional objects can be represented accurately on paper. Students will then apply these skills creatively by designing and producing their own robot using	• Exploring the difference between artistic drawing and technical drawing. • Understanding perspective and why this is important in design graphic communication. • Know the difference between Isometric and Oblique drawing and how these are done. • Use of Isometric paper to practice technical drawing. • Design and create robot drawing it accurately within the isometric perspective.

			isometric drawing techniques, combining precision, imagination, and presentation skills.	
Year 8	Autumn 2 & Spring 1	Textile's introduction and basic sewing techniques	This project introduces students to textiles and the properties of fabric. Students will learn about the tools, equipment, and techniques used in textile manufacture, while developing their understanding of basic hand-sewing skills, including running stitch and back stitch. After practising these techniques, students will design their own cross-stitch pattern, applying creativity and	• Introduction to what textiles is, tools used within it and techniques used to create textiles products. • Introduction of some of the basic hand sewing techniques and their uses. • Practical hand sewing skills development. • Understanding of cross stitch and how patterns work within the creation of them. • Design development of their own cross stitch designs. • Use of these designs to create own practical cross stitch final piece.

			accuracy to their work. They will then use their design to create a finished cross-stitch textile piece, developing both their practical sewing skills and confidence in working with fabrics.	
Year 8	Spring 2 & Summer 1	Creative Creatures Textiles Project	In this term, students will continue to develop their textile knowledge by studying the work of a textile artist who specialises in creating imaginative characters and creatures from fabric. Inspired by their chosen artist, students will design their own creative textile character, drawing on	• Designer research to inform designs. • Initial sketches of first ideas. • Mood board research based on initial ideas. • Design development using the research collected • Client Interviews • Specification using ACCESS FM to support this. • Final Design • Practical making of final design using all skills within the textiles project.

			the skills and techniques developed throughout the unit. Following the Design Cycle and iterative design process introduced in Year 7, students will research, generate, and refine ideas before producing a final design. They will then use this design as a pattern to create a three-dimensional textile character, applying their sewing, construction, and decorative techniques to produce a high-quality finished outcome.	

Year 8	Summer 2	Metalwork Dogtag Project	The final project of Year 8 introduces students to metalwork through a design-and-make challenge inspired by the history of military dog tags. Students will explore the origins and purpose of dog tags, as well as investigate modern products that have been influenced by their iconic design. Throughout the project, students will learn about the properties and applications of metals, gaining an understanding of why different materials are selected for specific purposes. Using the Design Cycle, they will	• Understanding the different types of metal and their properties and uses. • Studying the history of military dog tags and how they have inspired other modern-day products. • Initial ideas of products that could be made from metal. • Design development to a simple final design for their keyring. • Recap of health and safety within the workshop. • Safe use of hack and junior hack saws to cut off the excess of the metal. • Use of metal files to shape and polish their practical pieces. • Project evaluation.

			design a personalised metal keyring before manufacturing it in the workshop using a range of hand tools and metalworking techniques. This project develops practical skills, precision, and craftsmanship, while providing valuable experience of working with metal as a material.	
Year 9 1 LESSON PER FORTNIGHT				
Year 9	Autumn 1 & 2	Mini GCSE Clock Project Introduction	Throughout Year 9, students will complete a mini GCSE-style project to design and make a functional clock inspired by past	• Creation of a creative project title page. • Initial ideas exploring a wide range of clock styles and designs. • Designer research and influence in clock designs.

			and present designers. Following a simplified 3D Design process, they will create a title page, generate initial ideas, and analyse the work of influential designers through a series of design studies. Students will then carry out independent research on a designer of their choice and create a mood board to support the development of their ideas. This research will inform the refinement of their designs as they work towards a unique and	• Independent designer research and mood board to develop two more polished clock designs.

			well-considered final outcome.	
Year 9	Spring 1 & 2	Design Refinement and Model Making	This term, students will continue to develop their clock designs by gathering feedback from clients and using a design specification to identify and refine key design requirements. They will then produce a final design, carefully considering materials, construction methods, and how the product will be manufactured. To test and evaluate their ideas, students will create a scale 3D prototype of their clock	• Client profile and feedback from in depth interviews. • Specification exploring all aspects of clock design manufacture needs. • Refine final design of clock taking into consideration how it will be made and they type of materials used. • Understanding the importance of prototypes within a design project and how to use cardboard to create a to scale model of final design within the workshop.

			from cardboard. This modelling process will allow them to assess the practicality, appearance, and functionality of their design, making informed improvements before moving on to the final manufacture stage.	
Year 9	Summer 1 & 2	Final Practical of Clock Design	In the final stage of the project, students will draw upon the knowledge, skills, and techniques developed throughout Years 7 and 8 to manufacture their functional clock. Through extensive research, testing, and evaluation, they will	• Update of workshop health and safety. • One to one support in making design within the workshop by teacher and technician. • Independent working within a timeframe to get a product completed.

			have carefully justified their choice of materials, construction methods, and design decisions to ensure the best possible outcome. Using their final design as a guide, students will independently create a high-quality finished product, demonstrating creativity, precision, and craftsmanship while applying the full Design Cycle from concept to manufacture	
Year 10 & 11 GCSE OPTION 3D DESIGN 6 LESSONS PER FORTNIGHT				
Year 10	Autumn 1 & 2, Spring 1 & 2	Architecture Project	The first GCSE 3D Design project is	• Understanding of assessment criteria and GCSE breakdown/requirements.

			centred on **Architecture**, providing students with a structured introduction to the GCSE design process and assessment criteria. Throughout the project, students will develop an understanding of different architectural styles and movements before researching and selecting an architect whose work inspires them. Using this research, students will complete a range of graphic communication workshops and be introduced to Computer-Aided Design (CAD) to	• Title page • Architecture research • Architect Research • Freehand Drawing • CAD/Sketch up • One Point technical drawing. • Rendering • Project design brief • Initial ideas • Mood Board • Designer Research 1 and 2 • Design development • Client interviews • Birdbox research • Final design • Specification • Model making and evaluation • Final product • Making plan • Evaluation.

			develop their drawing and presentation skills. As their confidence grows, students will work increasingly independently to respond to the project brief: **to design and make a bird box inspired by architectural design**. This project encourages creativity, problem-solving, and the application of both traditional and digital design skills while preparing students for future GCSE coursework.	
Year 10 & 11	Summer 1 & 2, Autumn 1 & 2	Habitat Project	Building on the skills and processes	• Title page • Mind maps • Possible design briefs

			developed in their first GCSE project, students will follow the full design journey with increasing independence. Through in-depth research and investigation, they will explore a range of habitats, designers, materials, and manufacturing techniques, using their findings to generate and refine innovative design ideas. Students will make informed decisions about materials, construction methods, and aesthetics, supported by testing, experimentation, and prototype	• Initial ideas • Mood board • Designer research 1 & 2 • Design development • Client interviews • Material research • Technique research • Material and technique testing • Final design • Specification • Model Making • Final adaptions • Making plan • Final product • Evaluation.

			development. This iterative approach will enable them to evaluate and improve their designs throughout the project, ultimately producing a high-quality final outcome that demonstrates creativity, technical skill, and thoughtful design thinking.	
Year 11	Spring 1 & 2, Summer 1	Exam Project	The final GCSE project is set by the exam board and offers students a choice of seven design briefs. Students will select one starting point and complete a fully independent design	• Title page • Mind maps • Possible design briefs • Initial ideas • Mood board • Designer research 1 & 2 • Design development • Client interviews • Material research • Technique research

			project, applying the skills, knowledge, and processes developed throughout the course. Following the established GCSE structure, students will undertake in-depth research, develop and refine design ideas, explore materials and manufacturing techniques, and produce a comprehensive design portfolio. The project culminates in a **10-hour practical examination**, during which students independently manufacture their final product under exam conditions,	• Material and technique testing • Final design • Specification • Model Making • Final adaptions • Making practice • Making plan • Final product made within the 10 hour exam • Evaluation.

			demonstrating their creativity, technical ability, and practical skills.	