



Key Stage 4 Curriculum Journey:

The curriculum in KS4 Design & Technology will develop students' ability to identify, investigate and design possibilities which address the needs and wants of others. Students will demonstrate and apply knowledge and understanding of designing, making and technical principles through the production of prototypes which are fit for purpose. Students will analyse and evaluate the wider issues of design and technology as well as evaluate their own work and the work of others.

THE KS4 CURRICULUM JOURNEY Component 1

	Yr 10 Topic 1	Yr 10 Topic 2	Yr 10 Topic 3	Yr 10 Topic 4	Yr 11 Topic 5	Yr 11 Topic 6
Topic and learning focus	This is the introductory topic to the 3D Design GCSE course. Students are introduced to using patterns. They then produce a response in copper to the following statement; 'How do people use patterns to express themselves?' This is the first of six topics in component 1	This topic allows students to develop their hand craft skills and drawing skills. They will produce a timber box with an acrylic 'stained glass' insert. Students may choose to work in acrylic or silk to produce the stained glass effect dependent on their preferences This is the second of six topics in component 1.	This topic also functions as the year 10 mock exam. Following a trip to Warner Brothers Studios London, Students are tasked with producing either a prop, piece of scenery or accessory for a stage or film production of their choice.	This is the final topic taught in year 10 and focuses on how architecture can help people feel included regardless of their needs now or in the future. Students are assigned potential clients and tasked with redesign a public space of their choice to make it more accessible for their client group.	This project builds upon all of the workshop skills gained so far across Key stage 3 and 4. Students are introduced to a greater range of equipment and more complex skills in plastics, timber and metals. There is a focus on gaining independence in the workshop.	This project continues with developing skill and brings the whole design process together in a mock exam style project. The topic will follow a trip to the V&A in London and will give students an opportunity to select their own focus which reflects component 2. Topics offered will reflect the exhibitions on offer at the V&A so as to allow all students the opportunity to conduct their own primary research either in person or via the V&A's online archive. This is the last topic in component 1.
	People and Patterns	Stained Glass Box	Illustrious Illusions	Architecture for Accessibility	Skills and Processes	Mock Exam
Foundational Knowledge Prior learning needed	<ul style="list-style-type: none"> Recall basic use of 2D design CAD package from Felt Frames project in year 9. Understand the basics of using metal working tools (recall from year 7 - Metal Bugs). Understand how to layout a 2D drawing 	<ul style="list-style-type: none"> Be able to carry out research using a narrow range of primary and secondary source Able to show connections between different products and designers. recall use of 2D Design CAD package to be able to 	<ul style="list-style-type: none"> know how to lay out a plan of manufacture. Be able to carry out research using a narrow range of primary and secondary source Able to show connections between different products and designers. Understand and show the principle of laying 	<ul style="list-style-type: none"> Able to show developed research skills by using a broader range of sources, both primary and secondary. They will be able to include their own reactions to sources either with notes or sketches. understand and show a greater range of drawing skills using paints, pencil crayons, marker pens and 	<ul style="list-style-type: none"> Know about a range of timbers such as hardwoods, softwoods and manufactured boards Know about a range of metals including ferrous, non-ferrous and alloys Know about a range of polymers including thermoplastic and thermosets Understand and show the principle of laying 	<ul style="list-style-type: none"> Application of previous four projects, both making and drawing skills <ul style="list-style-type: none"> Application of prior materials knowledge as there are less design constraints in place leading to greater independence for students. Continue to practise presenting designs in a range of methods including isometric



	<ul style="list-style-type: none"> using appropriate tools Conduct limited investigations using secondary sources. Produce a limited evaluation of their own work using basic headings. 	<ul style="list-style-type: none"> reproduce own design work. recall how to use simple hand tools suitable for woodwork. Recall how to produce isometric drawings and apply colour using pencil crayon or paint. Able to use tools and equipment as appropriate to the materials chosen Able to evaluate own work using a given range of headings. 	<ul style="list-style-type: none"> out a visually interesting display for assessment. Learn the basic skills of selecting and working with modelling materials. Able to show a range of drawing skills based on previous projects 	<ul style="list-style-type: none"> fineliners and selecting the most appropriate. able to understand and apply skills gained in working with modelling materials Understand and show the principle of laying out a visually interesting display for assessment Able to use drawing boards to produce a simple orthographic views Able to make suggestions to solve problems as they arise during the manufacturing 	<ul style="list-style-type: none"> out a visually interesting display for assessment Able to use drawing boards to produce a simple orthographic views Able to make suggestions to solve problems as they arise during the manufacturing 	<ul style="list-style-type: none"> and oblique projections Apply knowledge of workflow management to meet interim deadlines for practical work. Students are independent when selecting and using tools and equipment
<p>Core Knowledge and skills</p>	<ul style="list-style-type: none"> Be able to carry out research using a narrow range of primary and secondary sources Understand how to reference a source appropriately. Use a limited range of drawing techniques - learning to use colour pencil and gouache paint Produce a piece of flat copper work 	<ul style="list-style-type: none"> Develop skills in problem-solving using scale, tessellation and the applications of different materials Able to show developed research skills by using a broader range of sources, both primary and secondary. They will be able to include their own reactions to sources either with notes or sketches 	<ul style="list-style-type: none"> Be able to presenting design work as a lay plan with detailed annotations to communicated their design ideas Able to show developed research skills by using a broader range of sources, both primary and secondary. They will be able to include their own reactions to sources either with notes or sketches understand and show a greater range of drawing skills using 	<ul style="list-style-type: none"> Be able to presenting design work as a lay plan with detailed annotations to communicated their design ideas Able to show developed research skills by using a broader range of sources, both primary and secondary. They will be able to include their own reactions to sources either with notes or sketches understand and show a greater range of drawing skills using paints, pencil crayons, 	<ul style="list-style-type: none"> Understanding jigs, formers and templates and their applications. Students will learn how to create their own jigs and templates to speed up manufacture and ensure repeatability. understand how and be able to structure and use a flow chart and gantt charts to plan their work flow. Continue to practise presenting designs in a range of methods including isometric and oblique projections 	<ul style="list-style-type: none"> Able to show developed research skills by using a broader range of sources, both primary and secondary. They will be able to include their own reactions to sources either with notes or sketches Be able to presenting design work as a lay plan with detailed annotations to communicated their design ideas understand and show a greater range of drawing skills using paints, pencil crayons, marker pens and



	<p>using appropriate tools and equipment.</p> <ul style="list-style-type: none">• Understand how to use 2D design in greater depth to replicate own design work• Be able to evaluate own work in greater depth using a larger range of headings• Understand how to layout and present work ready for assessment.	<ul style="list-style-type: none">• understand and show a greater range of drawing skills using paints, pencil crayons, marker pens and fineliners and selecting the most appropriate.• able to understand and apply skills gained in working with sheet materials to working with acrylic or silk.• Understand and show the principle of laying out a visually interesting display for assessment• Able to use drawing boards to produce a simple orthographic views• Able to make suggestions to solve problems as they arise during the manufacturing process.• Students will develop their materials knowledge in greater depth in regards to using timber.	<p>paints, pencil crayons, marker pens and fineliners and selecting the most appropriate.</p> <ul style="list-style-type: none">• able to understand and apply skills gained in working with sheet materials to working with acrylic or silk.• Understand and show the principle of laying out a visually interesting display for assessment• Able to use drawing boards to produce a simple orthographic views• Able to make suggestions to solve problems as they arise during the manufacturing	<p>marker pens and fineliners and selecting the most appropriate.</p> <ul style="list-style-type: none">• able to understand and apply skills gained in working with sheet materials to working with acrylic or silk.• Understand and show the principle of laying out a visually interesting display for assessment• Able to use drawing boards to produce simple orthographic views.	<ul style="list-style-type: none">• Application of prior materials knowledge as there are less design constraints in place leading to greater independence for students.• Understanding why a finish is applied to different materials for different uses.• Understand how finishes and treatments can impact the working properties of materials• Understanding why a finish is applied to different materials for different uses.• Understand how finishes and treatments can impact the working properties of materials• understand that most material groups can have an applied finish and that polymers is an exception• be able to apply their prior CAD/CAM knowledge to create CAM drawings for parts as needed• to understand that some materials can change their working properties when heated	<p>fineliners and selecting the most appropriate.</p> <ul style="list-style-type: none">• Able to select materials and manufacturing methods that are appropriate to the design.• Understand and select a finish that is appropriate.• Able to produce a range of drawings using a range of techniques• understand how to plan workflow.• Apply knowledge of workflow management to meet interim deadlines for practical work
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					<ul style="list-style-type: none"> • Understand and be able to apply knowledge of heat processes to create permanent joints • Students are semi independent when selecting and using tools and equipment 	
<p>Developmental Knowledge and Skills</p>	<ul style="list-style-type: none"> • Students will develop their research skills further using a broader range of sources, both primary and secondary. They will be able to include their own reactions to sources. • Understand and show a greater range of drawing skills using paints, pencil crayons, marker pens and fineliners and selecting the most appropriate. • Understand and apply knowledge of working with sheet metal to produce a functional and shows good precision ($\pm 1\text{mm}$) and a good finish • Understand how to consider the needs of the end user and the environment. 	<ul style="list-style-type: none"> • Students will develop their material knowledge further and be able to apply their knowledge to a practical and design problem • able to develop greater depth to their research using a given starting point of a design movement • Able to use drawing boards to produce detailed orthographic views. • Able to apply knowledge of working with sheet materials to produce a functional insert and shows good precision ($\pm 1\text{mm}$) and a good finish • Students will be able to show greater depth in their 	<ul style="list-style-type: none"> • be able to make selections of work from other designers past and present to inform their own design work • be able to develop and present a prototype to own design with less constraints in multiple materials. • Able to apply knowledge of working with materials to produce a functional product and shows good precision ($\pm 1\text{mm}$) and a good finish • Students will be able to show greater depth in their evaluations using suggested headings • Students are semi independent when selecting and using tools and equipment 	<ul style="list-style-type: none"> • Apply knowledge of jigs/formers and templates from the Vase project which is taught concurrently. • understand how to apply a finish to achieve a high quality product. • able to present design ideas in isometric format and communicate clearly using a mixture of sketches and annotation • understand and be able to name the stock forms for metals • Students will be able to show greater depth in their evaluations using suggested headings • Students are semi independent when selecting and using tools and equipment 	<ul style="list-style-type: none"> • using different metals in different forms depending on their working properties. Students should be able to select metals based on their working properties and stock forms for specific manufacturing processes. Students will build on their knowledge of permanent jointing methods from their soldering work on the stained glass project. • Apply knowledge of workflow management to meet interim deadlines for practical work • understand industrial processes and how they are replicated in the workshop when possible. • develop verbal communication skills • Students will be able to show greater depth in their evaluations using suggested headings. 	<p>Development: knowledge and working characteristics of materials. working to their own specification and amending as needed</p> <p>Continuing to develop a design and make changes based on ongoing research documenting research in a clear and informative way drawing skills orthographic projection</p>



	<ul style="list-style-type: none"> Understand how to evaluate in greater depth by commenting on what works and what needs changing about my ideas. Understands the principle of laying out a visually interesting display for assessment. Is semi independent when selecting and using tools and equipment. 	<p>evaluations using suggested headings</p> <ul style="list-style-type: none"> Students are semi independent when selecting and using tools and equipment. 			<ul style="list-style-type: none"> Students are independent when selecting and using tools and equipment safely. 	
Complex Knowledge	<ul style="list-style-type: none"> Able to apply knowledge of people and learning from KS3 history to develop research breadth Able to apply knowledge from research clearing in design work through both drawings, annotations and colour. Understands how to evaluate in great depth by utilising a range of sources and ideas 	<ul style="list-style-type: none"> To be able to problem solve and troubleshoot own design work leading to greater levels of self-reflection Able to use drawing boards to produce very detailed orthographic views. Able to select and use tools and equipment appropriately, safely and independently. Understand how to evaluate in great depth by utilising a 	<ul style="list-style-type: none"> To be able to use and apply knowledge of permanent joints used with a range of base materials - electronics, timber, metals and textiles. Able to evaluate a variety of manufacturing processes used in industry and their relevant hand craft equivalents Able to research independently using a variety of sources and recording their own reactions using notes and sketches 	<ul style="list-style-type: none"> To be able to use and apply knowledge of materials and processes to evaluate manufacturing process and design choices. Able to evaluate a variety of manufacturing processes used in industry and their relevant hand craft equivalents Able to use drawing boards to produce very detailed orthographic views. Able to use a range of different drawing 	<ul style="list-style-type: none"> To be able to use and apply knowledge of materials and processes to evaluate manufacturing process and design choices. Able to evaluate a variety of manufacturing processes used in industry and their relevant hand craft equivalents Able to research independently using a variety of sources and recording their own reactions using notes and sketches 	<ul style="list-style-type: none"> Able to evaluate a variety of manufacturing processes used in industry and their relevant hand craft equivalents. To be able to use and apply knowledge of materials and processes to evaluate manufacturing process and design choices. To be able to problem solve and troubleshoot own design work leading to greater levels of self-reflection. Able to use a range of different drawing



	<ul style="list-style-type: none"> • Able to independently use tools and equipment appropriately and safely. 	<p>range of sources and ideas</p>	<ul style="list-style-type: none"> • Able to select and use tools and equipment appropriately, safely and independently. • Understand how to evaluate in great depth by utilising a range of sources and ideas 	<p>techniques to show their ideas.</p> <ul style="list-style-type: none"> • Able to research independently using a variety of sources and recording their own reactions using notes and sketches 		<p>techniques to show their ideas.</p> <ul style="list-style-type: none"> • Able to research independently using a variety of sources and recording their own reactions using notes and sketches
<p>Links with the National Curriculum (Art and Design) AQA 3D Design</p>	<ul style="list-style-type: none"> • become confident in taking risks and learn from experience when exploring and experimenting with ideas, processes, media, materials and techniques • develop critical understanding through investigative, analytical, experimental, practical, technical and expressive skills • develop and refine ideas and proposals, personal outcomes or solutions with increasing independence • acquire and develop technical skills through working with a broad range of media, materials, techniques, processes and technologies with purpose and intent 	<ul style="list-style-type: none"> • become confident in taking risks and learn from experience when exploring and experimenting with ideas, processes, media, materials and techniques • develop critical understanding through investigative, analytical, experimental, practical, technical and expressive skills • develop and refine ideas and proposals, personal outcomes or solutions with increasing independence • acquire and develop technical skills through working with a broad range of media, materials, techniques, processes and technologies with purpose and intent • develop knowledge and understanding of art, craft and design in historical and 	<ul style="list-style-type: none"> • become confident in taking risks and learn from experience when exploring and experimenting with ideas, processes, media, materials and techniques • develop critical understanding through investigative, analytical, practical, technical and expressive skills • develop and refine ideas and proposals, personal outcomes or solutions with increasing independence. • develop an awareness of the purposes, intentions and functions of art, craft and design in a variety of contexts and as appropriate to students' own work • demonstrate safe working practices in art, craft and design 	<ul style="list-style-type: none"> • develop an awareness of the purposes, intentions and functions of art, craft and design in a variety of contexts and as appropriate to students' own work • demonstrate safe working practices in art, craft and design. • develop critical understanding through investigative, analytical, experimental, practical, technical and expressive skills. • develop critical understanding through investigative, analytical, experimental, practical, technical and expressive skills • develop an awareness of the purposes, intentions and functions of art, craft and design in a variety of contexts and as appropriate to students' own work 	<ul style="list-style-type: none"> • become confident in taking risks and learn from experience when exploring and experimenting with ideas, processes, media, materials and techniques • develop critical understanding through investigative, analytical, experimental, practical, technical and expressive skills • develop and refine ideas and proposals, personal outcomes or solutions with increasing independence. • acquire and develop technical skills through working with a broad range of media, materials, techniques, processes and technologies with purpose and intent • develop an awareness of the purposes, intentions and functions of art, craft and design in a variety of contexts and as appropriate to students' own work 	<ul style="list-style-type: none"> • become confident in taking risks and learn from experience when exploring and experimenting with ideas, processes, media, materials and techniques • develop critical understanding through investigative, analytical, experimental, practical, technical and expressive skills • develop and refine ideas and proposals, personal outcomes or solutions with increasing independence • acquire and develop technical skills through working with a broad range of media, materials, techniques, processes and technologies with purpose and intent • develop knowledge and understanding of art, craft and design in historical and contemporary contexts, societies and cultures • develop an awareness of the different roles and individual



		<p>contemporary contexts, societies and cultures</p> <ul style="list-style-type: none"> • develop an awareness of the different roles and individual work practices evident in the production of art, craft and design in the creative and cultural industries • develop an awareness of the purposes, intentions and functions of art, craft and design in a variety of contexts and as appropriate to students' own work • demonstrate safe working practices in art, craft and design 				<p>work practices evident in the production of art, craft and design in the creative and cultural industries</p> <ul style="list-style-type: none"> • develop an awareness of the purposes, intentions and functions of art, craft and design in a variety of contexts and as appropriate to students' own work • demonstrate safe working practices in art, craft and design
Literacy (including reading)	<p>malleable, ductile, hardness, toughness, conductive, density, Computer Aided Design, Computer Aided Manufacturing, 2D Design, vectorise, shaping, etching, acid, Iron(III) Chloride, alloy, solution,</p> <p>DEARSS Text: What is Copper? an in depth technical guide - used as calendared</p>	<p>Timber, tenon saw, mitre joint, mitre saw, clamps, vice, 2D Design, Computer Aided Design, Vectorise, laser cutter, dimensions, nesting, tessellation, Tolerance, grain, soldering, soldering iron, copper tape, solder, design fixation, negative space, evaluate, orthographic, isometric, dimensions</p> <p>DEARSS Text: What is Transparent Wood.</p>	<p>Iterative, evaluate, modelling, prototype, bonded, knitted, woven, nesting, nets, joints, dowel</p> <p>Own selected text. Macbeth, Shakespeare.</p> <p>DEARSS: God of War.,</p>	<p>scale, dimensions, model, orthographic, set square, disability, needs and wants,</p> <p>DEARSS: 'Young Architect Guide: 5 Ways to Tell Your Story Through Drawings Alone'</p>	<p>malleable, ductile, plastic, hardness, toughness, conductive, thermal, electrical, density, metal, alloy, solution, sustainable, mitre, braze, commercial, turning, lathe, milling, pressing, spinning, deformations, jig, template, former, capillary, dip coating, fluidising, dovetail joints, comb joints,</p> <p>DEARSS: Traditional craftsmanship is perhaps the most tangible manifestation of intangible cultural heritage</p>	
Cultural Capital	<p>CAD skills and CAM skills. Investigation of identity and how patterns</p>	<p>CAD skills and CAM skills. Change in design post WW1 - from 1800's to early 1900's</p>	<p>Start of pop culture and the current popular cultures. Mass production of fashion in the 1960's.</p>	<p>Science links where science use to demonstrate forces and balance</p>	<p>Change in design post WW1 - from 1800's to early 1900's</p>	<p>Organic forms Looking at nature and artists and designers work inspired by organic forms such as fabeque</p>



ASHLAWN SCHOOL

	connect with our cultural heritage.		Art movement Pop Art - Mary Quant			
Social, Moral, Spiritual and Cultural Development	Deeper understanding of how other people and cultures might show to represent themselves.	deeper understanding of designing for others and taking into account the needs and wants of other people.	Impact of fast fashion on the environment, importance of recycling, up cycling, reusing The changes in popular culture in the 1990 - 2020 Art - Graffiti - Fashion and collaborative design	students will understand the importance of working in a team as they prepare their materials in small groups.	students will gain an understanding of the impacts of mining and the responsibility of the designer to use recycled materials understanding of how large global events can change the aesthetics of design and the principles design is based on in response.	students will gain an understanding of the impacts of mining and the responsibility of the designer to use recycled or sustainable materials
Fundamental British Values	LAW - Workshop safety, legislation and PPE TOLERANCE - Values, ideas, challenging stereotyping RESPECT - respect of equipment and other people's space	TOLERANCE - Values, ideas, challenging stereotyping LAW -Workshop safety, legislation and PPE DEMOCRACY - equality LIBERTY - Personal development	LAW - Workshop safety, legislation and PPE RESPECT - respect of equipment and other people's space LIBERTY - Personal development	LAW - Workshop safety, legislation and PPE. RESPECT - respect of equipment and other people's space. LIBERTY - Personal development	LAW - Workshop safety, legislation and PPE. RESPECT - respect of equipment and other people's space. LIBERTY - Personal development	LAW - Workshop safety, legislation and PPE. RESPECT - respect of equipment and other people's space. LIBERTY - Personal development
Assessment	Assessment Details Polishing and shaping copper - Interim Assessment 1 Preparing final drawings for presentation. - Interim Assessment 2 4 Homework tasks All of the above link to the final assessment (below) Final presentation piece Rubric (practical, presentation, drawing, evaluation) based on AO1-4 from GCSE specification	Assessment Details; Check point 1 - initial ideas and CAD production - checking for independence. Rubric - Design and CAD use Check point 2 - mitre joints Rubric - Orthographic Rubric - Manufacturing.	Assessment Details; FORMAL MOCK EXAM ASSESSMENT all AO's from specification. Rubric 1 - Research, design and evaluation Rubric 2 - Final designs and manufacturing.	Assessment Details; Rubric 1 - Research, design and evaluation	Assessment Details; Rubric - sections marked at each checkpoint after each material.	Assessment Details; FORMAL MOCK EXAM ASSESSMENT all AO's from specification.