Subject Curriculum Overview

Subject: 3D Design (OCR GCSE)		Year Group: 10	AUTUMN TERM
Topic	**Key Learning Points**	**Key Vocabulary**	**Assessments**
Year 10 GCSE 3D Design is split into two halves: The first half of the academic year is a skills based project that provides students the opportunity to recap the skills and improve on what they accumulated in designing and making in Key Stage 3. It then allows them to develop new skills and technique. In the second half of Year 10, students will begin their first assessed piece of coursework, worth 60% of the overall GCSE grade. This portfolio continues into Year 11.			
Skills Projects	**END POINT: Complete 5 skills units of work that increases confidence, ability and knowledge in DT in order to successfully transition to Portfolio Project.** **Unit 1: Recap of KS3** *September – October* Students will: • Recap their knowledge of materials and their properties • Independently be able to choose the correct tools and equipment • Recap their knowledge of joints and make a box using two types of joints showing accuracy throughout • Be able to cut a non-regular shape from pine and use a forstener bit and pillar drill independently • Be able to shape, bend, fuse and finish acrylic • Be able to use a range of surface decoration techniques to enhance materials **Unit 2: Design Skills** *October - November* Students will: • Be able to draw in Oblique, Oblique Crating, Isometric, Orthographic, 1 point, 2 point and 3 point perspective • Be able to render and designs • Be able to use drawing techniques to further develop designs • Know what biomimicry is • Use biomimicry to inspire designs • Know different architecture styles • Create a modern house in sketch up	Softwood, hardwood, composite material, sustainable, finger joint, butt joint, rebate/lap joint, mitred joint, tenon saw, scroll saw, coping saw, band saw, forstener, heat bender, Tencel, wet and dry, oils, stains, varnished, paints, matt and gloss Oblique, Oblique Crating, Isometric, Orthographic, 1 point, 2 point and 3 point perspective, rendering, Biomimicry, Islamic, art deco, art nouveau, Bauhaus, brutalist, contemporary, gradient, pitch, birds eye view	Teacher-assessed folder work progression (the design process) using a combination of verbal and written feedback, with key areas to develop. Teacher assessed practical looking at practical manufacturing skills and quality of product outcome. 'Forms' Summative assessment at end of half term to assess understanding of key learning points.

	Unit 3: Prototyping *November – December* Students will: • Be able to work in groups to create flat packed assembled chairs following a strict design criteria • Understand ergonomics when creating prototypes • Know a range of design icons in furniture design • Create scaled prototypes of design classic chairs **Unit 4: Designers and Design Movements J***anuary - February* Students will: • Know a range of designers from the history of design • Know and recognise design movements • Be able to vectorise a design on 2D design suitable for cutting and engraving on the laser cutter inspired by a designer or a design movement **Unit 5: Modelling** *February – half term* Students will: • Explore a variety of modelling materials including Styrofoam, foam board, wire, clay, wire formers and Modroc, casting techniques	Flat pack, compression, torsion and tension, ergonomics, specification, Alessi, Conran, Chippendale, scaled Design movements, vectorising, engraving Styrofoam, foam board, wire, clay, wire formers and Modroc, casting techniques	
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GCSE Coursework Portfolio	Each student's portfolio consolidates knowledge, understanding and skills learned to this point. Students independently explore, research, design and manufacture a product of their choosing. A student's portfolio showcases both practical work and a personnel response to a set starting point / design context. The project continues into Year 11 and is worth 60% of their overall GCSE. A student's portfolio is broken down into four assessed key objectives: • *Through investigation, develop design ideas which demonstrate a critical understanding of sources.*	Using vocabulary mastered from previous years, students embed subject specific terminology into their coursework portfolio, to demonstrate their knowledge and understanding of this subject specialism.	Teacher-assessed coursework portfolio progression using a combination of verbal and written feedback, with key areas to develop. This NEA portfolio is teacher marked by January of Year 11, and externally moderated towards the end of the Year 11 academic year.

	• *Refine work through exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes.* • *Record design ideas, observations and insights which reflect aims and intentions as the design and manufacture work progresses.* • *Presentation of a personal and meaningful response which reflects the design intentions and which also demonstrates an understanding of key design elements.* By the end of Year 10, students will have completed most of the design process, including some prototyping of their final design. Students will not begin the full manufacturing process until Year 11.		

How parents can support learning in the subject this academic year

Students will be expected to continue with folder work at home. Students should be encouraged to be working on their 3D Design work for approximately 1 hour per week. During the manufacturing stages, students will need to download photographs of their previous lesson, and add these to their work as part of their making diary. It always saves time in lessons (and possible internet issues) if these photographs were downloaded at home. Students should be encouraged to practise manufacturing skills around the home to help build confidence and accuracy using tools.

Recommended Reading

Websites:
http://www.mr-dt.com/ https://www.bbc.co.uk/bitesize https://technologystudent.com https://design-technology.org https://designmuseum.org
Books:

- SketchUp for Dummies – Bill Fane
- IRONCAD Assembly Drawings – Sachidanand Jha
- Universal Principles of Design - William Lidwell, Kristina Holden, Jill Butler

Points to note

Whilst we do our upmost to stock materials for GCSE students to manufacture their bespoke products, any help in sourcing these for your child would be greatly appreciated.

All GCSE work remains on school site for the following academic year after manufacture.

We are, as a department, doing our upmost to source responsibly for our environment; Any parents/carers within the manufacturing or design industry who would like to donate off-cuts, or materials to re-use please contact the design technology faculty.