The five Year curriculum: Design Technology

Formal Exam Assessment 50% coursework

- Mock Examinations to sample existing knowledge and identify gaps
- Exam based theoretical studies
- Booster Revision sessions
- Present prototype and portfolio for formal assessment
- Generate high level prototypes through 3D printing
- Refine existing design work showing development following testing
- Draw and scale prototype selecting appropriate software
- Explore and revise each of the core, specialist and technical principles of Design Technology pre-examination AQA

Non Exam Assessment (NEA) 50% coursework

Year 11

- Begin high quality prototyping selecting appropriate materials
- Create a series of designs showing originality
- Informing personal design decisions through a design brief
- Generate a design specification appropriate to personal project
- Market research, consider human factors inc. ergonomics
- Express relevant opinion about a range of products
- High level analysis and evaluation of products
- Evaluate existing products and identify target demographic
- Sample designs and explore feedback.
- Draw, measure and mark out component parts
- Select appropriate materials
- Consider aesthetics: surface finish, texture and colour.
- Select appropriate physical and working properties when designing and making
- Be able to collect relevant research
- Independent study and start of project developing product of own choice

Applied Design Technology Studies

- How we create energy in different ways
- The theory behind modern electronic systems
- The use of smart materials and technologies
- Production methods
- Impact of industry and enterprise on the modern world
- Exploration of materials such as Timbers, Polymers, Metals
- Generate rotation designs and 3D curves using Google SketchUp
- Research designers focused on furniture design
- Generate design for mini project exploring furniture design
- Furniture mini prototype presentation
- Timber based materials (how to cut, drill, chisel, sand and plane)
- Importance of sustainability
- Creating slotting joints using CAD/CAM
- Development & assemble of design work using 2D Design & laser cutter
- In-depth focus on Timbers processes/uses and techniques
- Understand timbers standard components e.g. woodscrews, hinges, KD fittings

Year 10

- The 6 R's
- Commercially available types and sizes of materials
- Papers & boards (flyers/leaflets & card based packaging).
- Metal based materials (extraction and refining)
- Efficient material use, and minimising waste
- Evaluate process and outcome against the iterative pattern for design
- 3D CAD generated Prototype construction

Theoretical Studies (Materials)

- Ecological issues in the design & manufacture of products
- Physical and mechanical properties relevant to commercial products
- Electronic & mechanical systems (motor vehicles & domestic appliances)
- Textile based materials (sportswear and furnishings)
- Properties and uses of Timber based materials
- Hand made Prototype construction
- Design development through CAD building 3D shapes and layers
- Enhance original designs using isometric drawing
- Develop internal and V stand mechanisms
- Apply colour and text to a good standard
- Create original pop up book pages using own drawings and designs
- Develop literacy when writing about design
- Evaluate and test design functionality
- Develop designs from initial concept sketches

Papers & Boards (Pop Up Cards/Books)

Iterative Design (3D Lamp)

Year 9

- Understand how mechanisms work with card
- Draw and develop nets for a cube
- Evaluate success/failure of product through testing
- Be able to identify key points to a design brief
- Generate a short original storyboard showing planning
- Apply accurate cuts and measurements to work
- Apply correct terminology and language to design criteria
- Understand the term biomimicry giving examples
- Analyse design brief exploring existing products
- Produce detailed design specification

Enterprise Design (Board Game)

CAD/CAM (Monster Wrap)

- Refine & Re-Test
- Develop pieces and sections
- Idea generation
- Analyse existing products
- Packaging design incorporating Vacuum Form
- Vacuum Forming Process
- Use 2D Design to cut and engrave shapes
- Explore the design problem and develop solution
- Explore existing products and produce analysis
- Develop ability to evaluate both own work & peers
- Product Testing and identify issues
- Design the rules and present using relevant terminology and/or graphics
- Design & assemble the board
- Understand the term target market
- Analyse design process & outcome - Testing
- What is a POS?
- Read a specification and analyse key pointers
- Analyse initial design problem

Computer Aided Design (Drawing & Modelling in 2D&3D)

Year 8

- Learn about designers Ettore Sottsass & Norman Foster
- Learn how to create original design influenced by others
- Developing skills in isometric drawing
- Learn how to draw using one point perspective
- Develop shading techniques
- Understand how CAD is used in the modern world
- Develop perspective drawings on computer
- Learn about the design work of William Morris
- Explore the fundamentals of Bauhaus Design
- Explore the innovation of Apple iPhone
- Develop personal investigation into Under Armour, Gap or Dyson
- Learn how to draw basic orthographic projections
- Learn the basic controls of 2D Design 2D DESIGN
- Learn how to construct basic shapes and structures in Google SketchUp
- Apply texture and materials using CAD software
- Use correct language and terminology to evaluate own work
- Learn about the work of Phillippe Starck
- Draw basic shapes on 2D Design
- Design an appropriate space following criteria using CAD to model personal response

Design History

Timbers (Desk Tidy)

Year 7

- Quality assure product against starting point & initial intentions
- Learn how to apply finishes such as sanding and varnishing
- Learn to evaluate work in progress
- Create a butt lap joint in wood
- Create a lap joint in wood
- Learn how to cut with a tenor saw
- Learn to cut with a coping saw
- Measure & mark wood for precise cuts
- Be able to generate ideas through sketching
- Workshop health & safety
- Learn the names of a variety of tools