

Design & Technology Year 8 Curriculum Overview



Year 8 Overview

In Year 8 Functional Skills, students develop practical workshop skills through a series of focused lessons. They learn accurate marking out, safe use of hand tools and machinery, and assembly techniques. Emphasis is placed on **health & safety, tool selection, and accuracy**. Students' complete skills audits and set improvement targets after each practical activity.

In the Autumn and Spring term students complete a **Biomimicry Light Project** where they design and make a desk lamp inspired by nature. The project develops skills in **research, design thinking, client profiling, CAD, electronics, and practical making**. Students learn about sustainability, biomimicry, materials (metals, timbers, manufactured boards), and basic electronics. The project culminates in a functional lamp and an evaluation of the design process.

In the summer term, students will complete a **Cam Toy Project** that introduces mechanical movement through cams. They will design and make a wooden cam toy that uses a cam mechanism to create vertical motion. Students will develop skills in **design sketching, peer evaluation, CAD planning, cutting lists, and workshop safety**, culminating in a finished product and evaluation.

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Week Number	Themes/ Topics	Key Knowledge & Skills	Key Assessments
Autumn HT1	Functional Skills – Practical Workshop Skills	- Health & Safety in the workshop (signs, PPE, routines). - Accurate marking out using steel rule, try square, marking gauge. - Safe use of tenon saw and bench hook for cutting. - Understanding tolerance and accuracy. - Safe use of pillar drill and screwdriver for fixing components. - Reflective practice through skills audits and target setting.	- Baseline practical skills check. - Ongoing teacher observation and verbal feedback. - Skills audit sheets (RAG rating) for marking out, sawing, and drilling. - End-of-term practical assessment: students demonstrate accurate marking, cutting, and drilling under safe conditions.
Autumn HT2 & Spring Term	Biomimicry Light Project	- Understand biomimicry and its role in design. - Analyse design briefs and create client profiles. - Research natural forms for inspiration. - Generate initial ideas and develop designs with annotation. - Learn metals and timbers theory. - Explore properties of metals, timbers, and manufactured boards. - Understand sustainability in material selection. - Create CAD models and technical drawings. - Plan measurements and cutting lists. - Begin practical preparation. - Safe use of tools and workshop equipment. - Cutting, sanding, drilling recycled tins and timber. - Apply biomimicry-inspired designs to tin wraps. - Assemble electronics (LED, resistor, soldering). - Sublimation printing for decorative base. - Final assembly using nuts and bolts. - Evaluate design against brief and client needs. - Reflect on sustainability and environmental impact. - Present design portfolio with sketches, CAD, and photos.	- Baseline design skills check. - Assessment of design ideas and client profile. - Peer feedback on design development - Assessment of CAD work and cutting list. - Theory quizzes on materials and sustainability. - Practical assessment of making skills. - Peer assessment of circuit diagrams. - Completed lamp product. - Written evaluation. - Assessment of final product and portfolio.

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Summer Term	Mechanisms – Cam Toy	- Understand cam types and their functions. - Generate and annotate four design ideas. - Peer assessment and improvement suggestions. - Select final design and apply colour. - Create cutting list and plan using Gantt chart. - Safe use of workshop tools and equipment. - Accurate marking, cutting, and assembly of wooden components. - Apply finishing techniques. - Test cam mechanism for smooth movement. - Evaluate final product against specification.	- Assessment of design ideas and annotations. - Peer feedback recorded. - Cutting list accuracy. - Completed Gantt chart. - Assessment of final cam toy quality and functionality. - Evaluation write-up. - Presentation of completed product.
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