# GCSE ENGINEERING – LAMP PROJECT GREEN SHEET

Overview – Completion Date:

## You Will:

- • Develop skills in accurate measurement and marking out using timber.
- • Understand differences between hardwoods, softwoods, and manufactured boards, and how their properties influence material selection.
- • Safely use a range of workshop tools and machinery including router tables, drills, and soldering equipment.
- • Learn the importance of tolerances, jigs, fixtures, and production efficiency.
- • Construct a working lamp with a functional electrical circuit using traditional and modern processes.

## Lesson Overview

- • Technical drawing, Orthographic Projection, Isometric Drawing, 2 point perspective.
- • Timber: properties, types, and selection
- • Mortice and tenon Joints
- • Use of router tables and jigs/fixtures
- • Life Cycle Assessment
- • Soldering process and circuit symbols
- • Thermo and thermoset plastics.
- • Surface finishing and quality control
- • Evaluation of outcomes and commercial viability

## Key Words

Hardwood, Softwood, Manufactured Board, Tolerance, Accuracy, Jig, Fixture, Router, Orthographic, Mortise and Tenon, Soldering, Flux, LED, Life Cycle Assessment (LCA), Commercial Viability

## Cross Curricular Links

Science: Understanding how timber properties relate to structure and function.

Physics: Electrical circuits and component functions.

Maths: Measurement, geometry in working drawings, angles in joints.

SMSC: Product safety and consumer responsibility; environmental impact via LCA.

Literacy: Use of technical vocabulary in written and verbal evaluation.

## Focus Practical

This project is aimed at helping you produce a commercially viable product.
You will learn how to:

- • Work safely and accurately in the workshop
- • Use jigs and fixtures to improve quality and speed
- • Finish your product to a high standard
- • Apply critical thinking to evaluate function, aesthetics, and sustainability