

# GCSE Resistant Materials

## Revision guide

Design cycle & customer needs	Researching. Initial specification. Anthropometrics. Ergonomics. Market surveys. Design Brief's. Design solutions. Production methods. Quantity production. Ideas development. The environment, sustainability, recycling.
Drawing Techniques	Drawing Freehand. Coloring and Enhancing. Mock up models. Isometric. Orthographic Projection. Dimensioning (adding sizes)
ICT Applications	Use of CAD/CAM. Batch production. Data presentation: bar graphs etc. Text. Packaging. Use of Spreadsheets.
Production	Batch. Repetitive flow. Continual flow. Quality assurance & quality Control. Labeling Storage.
Product evaluation	Assessing products -fit for purpose
Classification of wood types & Uses.	Hardwoods: Oak, Teak etc Softwoods: Pine etc. Manufactured boards: MDF, Plywood etc. Forms-Sheet, Plank, Round/Square/Rectangular sections
Classification of Metals & Forms	Ferrous. Non Ferrous. Properties and Uses Ductility. Strength etc. Forms Tube Round/Flat/Sheet and bar etc.
Plastics	Thermoplastics. Thermo sets. Examples and Production Techniques Forms Sheet and Tube etc.
Marking out and Making (Fabrication Techniques)	Marking out-tools, Cutting, Shaping, Drilling, Joining etc. Jigs and Templates
Components Fastenings, and Fittings and Joints	Knock down joints, Screws, Nuts, Bolts, Washers and Rivets etc.

	Brazing, Welding, and Hinges etc.
Clamping and Holding	Uses, types-How To Glues - Types and Uses
CAD/CAM	Use of computers in Design Use of computers in making - routing and milling lathe work, Digital cameras, image manipulation
Basic Structures	Recognize structures in manmade & natural materials Frames - narrow joined pieces - what joints Carcass - wide boards joined - what joints
Hand tools and Machine tool uses	Saws, Drills, Lathes, Power tools and Milling machine.
Quality Control and Assurance	Successful products & satisfied customers
Health and Safety	Safe use of machines, Solvents, Glues and finishes
Surface finishes-Paints, Varnish, Lacquers, Coatings and Electro plating.	Uses of different products Reasons - Aesthetics, Protection, Uses
Testing & Trialing	Evaluation, Customer satisfaction, Evaluate against specification, Recycling, Pollution, Sustainable products. Safe disposal, analyze use of jigs, Templates in Production
Mechanisms	Gears, Leavers, Pulleys, Links, Types of Motion Cams, Cranks, Rack and Pinion, Belts and Motors
Shaping Materials	Vacuum Forming, Line Bending, Molding Plastics, Welding, Bending, Brazing, Turning, Milling Metal, Cutting, Bending, Shaping, and Grinding wood

Preparing Material	Glass paper, Wet and Dry, Emery Cloth
--------------------	---------------------------------------

### ***Industrial awareness.***

Scale of production, CAD\Cam\CIM in industry

Advertising marketing

Good working practice

Jigs, Moulds templates