

Overview of D&T

Y7

Puzzle Project

Students develop use of measuring and marking out skills. They go on to develop designs for a puzzle that will be made using a variety of hand and machine tools. The puzzle will need to be finished using graphic design skills.

Resources. Measuring equipment, MDF, G Clamps, Tenon Saw, Band Face sander, Felt tip, Colour pencil, mm rule, Work booklet.

Torch Project

An introduction project enabling students to create a small LED torch that is illustrated to show something about themselves.

Resources – Torch kit(HIPS, foam, LED and Battery), Double sided tape, Colour pencils, work booklet.

Plastic Product using CAD/CAM

Students are introduced to using Computer Aided Design and Manufacturing. Using traditional paper and pencil as well as 2d design software students develop designs for an interesting and useful product to be made in acrylic using the laser cutter.

Resources – PC / Laptops, Acrylic, Laser cutter, work booklets.

Promotional Game

Students use London as the basis for research in order to develop suitable designs for a 'Ball Bearing' style game that promotes a tourist attraction in London using quality graphic design. Students will be expected to develop research skills as well as drawing and graphic design skills.

Resources – PC / Laptop for research, Card, Ball bearings, contact adhesive, hole punch, vacuum former, templates / moulds, clear PVC sheet, work booklet.

Y8

Personal Mirror – CAD CAM

Students further develop skills in the design process through research, analysis of existing products leading to the development of design solutions using paper and pencil as well as CAD. They develop

suitable designs for manufacturing an interesting and imaginative product using the laser cutter. The design will be made up of separate parts that will need attaching together.

Resources – PC/ Laptop, work booklet, laser cutter, tenon cement, card.

Chocolate bar Wrapper – Graphic Design

Students use research and analysis to learn about the importance of branding and packaging a product. They develop design ideas, understanding the importance of colour and use of fonts in graphic design. Each student will create a chocolate bar wrapper in their chosen style.

Resources – research material, work booklet, colouring media, paper templates,

Door Defender - Electronics project

Students develop their knowledge and understanding of electronics through the design and construction of a 'fun' Alien door defender. They will use a Printed Circuit Board to solder components to, using a soldering iron. The completed circuit will be attached to a 'Alien / monster' face cut from MDF and finished using colour to create flashing eyes.

Resources – PCB's, electronic components, soldering irons, MDF, bench mounted jigsaws, felt tip pens, work booklet.

Y9

Cast Pewter Jewellery

Students will learn about how metals can be formed / shaped using a casting process. They will use analysis and research to help develop suitable designs for the process.

The moulds will be created by carving their design into plaster of paris before pouring molten pewter in. The cooled and solid pewter will need filing and polishing to obtain a quality finish. Parts may be added to create a stylish piece of jewellery. The products will be fully evaluated.

Resources - Mould cases, carving tools, work booklets, brazing hearth / casting centre, safety equipment, needle files, abrasive paper, metal polish.

Decorative Storage Box

Students learn about different methods of joining wood before creating a high quality storage box. They will also research various design styles before using CAD to develop a suitable decorative pattern for the lid. This will be etched on to the lid using a laser cutter / engraver.

Resources – Pine, plywood, marking out tools, tenon saw, bench mounted jigsaw, vice, clamps, band face sander, work booklet, Laptop / PC , laser cutter.

Y10

Product Design

Decorative Bangle / Cuff

Students undertake a detailed examination of 20th century Design styles, using this information to create designs for a cuff / bangle in acrylic, suitable for a given target market. Using a variety of hand drawn, card modelling and CAD students develop a suitable design for manufacturing using laser cutter and heat forming methods.

Packaging design

Students learn about the purposes of packaging before developing designs for packaging their bangle. They learn about using card nets as well as suitable graphic design features to use.

MP3 amplifier / speaker

This project requires students to build an amplifier circuit that can take an input from a phone or MP3 player. They then design a casing for the circuit, taking into consideration, external appearance and internal requirements. The product must appeal to a chosen target market.

Theory lessons cover a range of topics –

- . Paper/card plus at least one other material
- . Design issues such as sustainability, packaging, human factors, etc
- . Manufacturing . both school based and commercial methods

History of design, Product evolution, Technology push and market pull, Printing methods, paper and card finishing, consumer rights and legislation, Brand identity, Health & Safety, Smart and New materials, Human factors such as ergonomics and anthropometrics, Sustainability and environmental considerations.

Y11

In Y11 students are mainly concerned with the development of their Controlled Assessment topic which is chosen from a set list given by the exam board. Students work through Research, analysis, Specification, Development of ideas, planning, making and evaluation.