

## **Caroline Chisholm School - KS3 Design Technology Projects**

### **Year 7 Product Design – Table tennis bat**

Students will have the opportunity to design and make a functioning table tennis bat.

Students will learn how to use the following tools and equipment:

- coping saw
- band facer
- engineer's files
- scalpel
- How templates can be used to ensure quality

Students will use the following materials:

- Plywood
- Pine
- Polymer foam

Progression model: This project is intended to build making skills as most students in Year 7 will have very limited practical skills. Students will be introduced to the idea of self-monitoring and ongoing evaluation of their work as they manufacture their product.

### **Year 8 Product Design – Photo frame**

Students will have the opportunity to manufacture a functional photo frame. Students will learn how to use the following tools and equipment:

- measuring and marking equipment
- tenon saw
- bench hook
- pillar drill
- hand drill
- vacuum former
- metal forming jig

Students will use the following materials:

- pine
- acrylic
- high impact polystyrene (HIPs)
- nuts and bolts
- mild steel rod

Progression model: This project is intended to build upon the practical skills learnt in Year 7. Students will learn to mark out and accurately cut halving joints. They will need to measure and mark out without the aid of templates. There will be a far greater emphasis on accuracy of manufacture and quality control.

## **Year 9 Product Design – Under review**

### **Year 7 Graphics – Pop-up book**

Students will learn a range of drawing skills essential for all DT modules. They will then prototype pop-up mechanisms that will result in pop-up book.

Students will learn how to use the following tools & equipment:

- ICT skills -use of CAD – 2D design and Publisher – contouring/cropping/clipping images
- Prototyping using given templates
- Scalpel/cutting mat/safety ruler
- Guillotine

Students will use the following materials:

- Coloured paper
- Card

**Progression model:** This project will allow students to research existing products and focus on the graphical aspect of colour/image/text. It also links with literacy and designing products appropriate to age/target market. Students will have an introduction to CAD and desktop publishing.

### **Year 8 Graphics – Menu & stand**

Students will through analysis & creative design strategies develop a menu with a stand. This project allows students to improve an existing product through develop iterations. Students will build on knowledge of 2D design & desktop publishing.

Students will develop their skills further through challenge and accuracy in using the following equipment:

- Scalpel
- Use of 2D design and possible use of the laser cutter
- Use of nets to create 3D outcomes
- Laminating paper/card
- Glue gun

Students will use the following materials:

- Card/paper
- Corrugated board
- Greyboard
- Styrofoam

- Neoprene foam

Progression model: This project builds upon the skills in using CAD from Year 7. It focuses on creativity and improvement of an existing product with attention to graphical language. Iterative design will be a focus in this project. Students will carry out peer and self assessment.

## **Year 9 CAD CAM / Electronics**

### **Rationale**

The spring of 2018 saw a real focus on climate change and environmental issues. Protests that impacted on the economy of the country and the capital city were led by young people, worried about the impact that current generations are having on the planet that will be left behind for them to clean up to keep it habitable for their children and grandchildren.

This module will look at how designers can play a big part in reducing the impact that the manufacturing industry has on climate change, including the carbon foot print and life cycle (cradle to grave) analysis of everyday products.

The context is set in a hotel that wants a more sustainable product to reduce energy wastage through the clever use of a lighting solution that will help guests to feel safe without the need for continuous illumination of all bedrooms when guests are not in residence.

Students will have the opportunity to design and make a functioning table lamp influenced by biomimicry. Students will learn how to use the following tools and equipment:

- 2D Design
- Laser cutter
- How standard components can be used to increase speed and accuracy of production

Students will use the following materials:

- MDF

Progression model: This project is intended to build on CAD skills learnt in Year 7+8 in order to manufacture a product using CAM. There is an increased focus on accuracy as their individual components must fit the standard component provided. Pupils use natural forms to influence their design ideas to produce a lamp. Electronics are introduced through a simple LED and switch circuit soldered to a battery pack.

## **Year 7 Food & Nutrition**

Students will learn skills in food hygiene and preparation to create mainly savoury dishes. The focus is the use of ingredients and to carry out a sequence of preparation and cooking activities. The final practical session will be an assessed piece and will require students to create a detailed timeplan. Students will complete this activity independently.

Students will develop skills in food preparation & cooking

- Knife skills – bridge & claw, slicing, chopping, peeling
- Rubbing in method, making a sauce, boiling
- Use a range of ingredients
- Weighing & measuring

Students will use a range of equipment:

- Use of chopping board
- Knife safety
- Use of oven, hob
- Washing up – correct use of equipment

Students will produce the following dishes:

- Fruit based dish – fruit salad/apple crumble
- Pizza toast
- Macaroni cheese
- Vegetable ragu sauce

Progression model: Students will begin with hygiene and safety, for many this will be the first time in a school kitchen. Therefore safe & hygienic work practises need to be established. Students will start with 'mise en place' to embed professional practises (these will continue into yr 8/9 and beyond. They will learn about the 'Eatwell guide' and its function to a well balanced diet. Student will use a range of techniques such as using the hob & oven to create dishes that builds on experience & confidence. They will evaluate through self assessment. Students will be encouraged to cook at home.

## **Year 8 Food & Nutrition**

Students will develop a wide range of food preparation and cooking skills. The practical outcomes will be mainly savoury. Focus will also be on function of ingredients within recipe/dish. Students will learn about food safety & hygiene.

Students will develop skills in the following areas of food preparation & cooking

- Peeling, dicing, chopping
- Saut ing, boiling, pan frying
- Use of spices
- Mixing, kneading, proving, baking
- Use of high-risk foods

Students will use a range of equipment including:

- Correct use of chopping board
- Setting workstation correctly
- Use of hob
- Use of oven
- Knife
- Washing up – correct use of equipment

Students will produce the following dishes:

- Bombay potatoes
- Bread pizza swirl
- Brownies
- Savoury rice

Progression model: Students will focus more on the function of ingredients and learning a wider range of food prep and cooking skills. The same professional working practises established in yr 7 will be reinforced. Dishes will develop in complexity and students will understand why particular ingredients are used in recipes. Students will be able to adapt/add to recipes. They will evaluate the food through sensory analysis as well as third party feedback. Self-assessment of working practises will be conducted. Cultural foods can also be focussed through the recipes completed.

## **Year 9 Food & Nutrition**

Students will continue to develop skills further. They will also focus on nutritional functions of foods and complete detailed sensory analysis.

Students will develop skills in the following areas of food preparation & cooking:

- Pastry making
- Knife skills - food presentation skills
- Peeling chopping/dicing
- Sautéing, whisking
- Weighing, measuring

Students will use a range of equipment including:

- Correct use of chopping boards – for vegetables/fruit/dairy/cooked meats
- Use of fridge/freezer - chilling
- Use of hob/oven
- Measuring scales/whisks
- Washing up – correct use of equipment

Students will produce the following dishes:

- Shortcrust pastry – potato pasties
- Cheesecake – presentation skills
- Vegetable curry

Progression model: Students will produce challenging dishes and focus on presentation skills. Students will learn how nutrients from foods are used by the body and adapt recipes for particular dietary needs. Wider range of equipment will be used and professional working skills will be set. Sensory analysis will form part of the self assessment through detailed taste testing and use of key terminology. Cultural foods can be referenced through dishes produced.

### **Year 7 Textiles (Monster toy)**

Students will have the opportunity to design and make a stuffed monster toy using recycled fabrics.

Students will learn how to use the following tools and equipment:

- Needle and thread
- Fabric scissors
- Sewing machine
- Pins
- Tailors chalk

Students will learn the following skills

- Hand sewing using basic stitches such as running and back stitch
- Speed control on the sewing machine (Driving test)
- Basic machine sewing and intro to threading the machine
- Basic applique including layering
- Basic pattern making

Students will be using the following materials

- Recycled cotton and polyester fabrics
- Embroidery thread
- Bonded felt fabrics

Progression model: This project is intended to build making skills as most students in Year 7 will have very limited/varied textiles practical skills. Students will be introduced to the idea of self-monitoring and ongoing evaluation of their work as they manufacture their product.

### **Year 8 Textiles (Cushion cover)**

Students will have the opportunity to design and make a square cushion cover inspired by the festival “The day of the dead”. The cushion will feature the techniques Batik and Tie dye with an introduction of fastenings

Students will learn how to use the following tools and equipment:

- Sewing machine (Build on skill from year 7)
- Batik pot and tools
- Fabric dyes
- Iron and ironing board

Students will learn the following skills

- Hand sewing using more advanced stitching such as cross, zig zag, slanted and French knot
- Speed control on the sewing machine (Driving test is intermediate level)
- Threading the machine including sewing corners using a needle turn
- How to create wax resist dye patterned using wax and elastic bands
- Attaching basic fastenings such as buttons, poppers or Velcro
- How to use an iron and ironing board

Students will use the following materials

- White calico fabric
- Natural fabric dyes
- Mixed fastenings and standard components
- Bee wax
- Thread/embroidery thread

Progression model: This project is intended to build upon the practical skills learnt in Year 7 and introduce dye method. There will be a greater emphasis on creativity through design

influences, the impact on the environment and the use of fastenings. Students are also expected to have mastered a needle turned corner on their cushion cover.

### **Year 9 Textiles (Hat)**

Students are making a polyester fleece hat which is designed around gathering anthropometric data from their client to produce an accurate template from scratch. The hat will consist of 4 or more panels and a band which must consider seam allowance. The student will then create an internal washing tag and transfer printed logo to promote their brand name.

Students will learn how to use the following tools and equipment:

- Sewing machine (Build on skills from year 8)
- Iron and ironing board
- Tape measure, pattern paper, fashion drawing tools
- CAD design software

Students will learn the following skills

- CAD drawing skills to design the logo
- How to gain anthropometric data and use it to inform design
- How to work out seam allowance and factor into design
- How to draw an accurate pattern
- How to use a sewing machine more accurately to create shop bought quality hat.
- How to transfer print.

Students will use the following materials

- Thread
- Polyester fleece
- Transfer paper
- Pattern paper

Progression model: This project is intended to focus on producing a shop bought quality hat that has been design on anthropometric data. The student will be expected to think about methods of production, marketing, branding and shop labelling. The theory level is also much higher will students having to understand properties of materials, origins and construction types.



