

DESIGN AND TECHNOLOGY CURRICULUM



Further and higher education courses: A-level, BTEC, degree

Professional artist, designer, illustrator

Careers in other arts-based industries: interior design, architecture, set design, fashion design, tattoo artist, make-up artist

Art teacher / art therapist

Curator in art gallery or museum



YEAR 11

TARGETED REVISION
Students will revise key topics identified as priority through the half termly assessment cycle.

NEA - REALISING DESIGN IDEAS, TESTING & EVALUATING
Students will continue to apply the practical and theory learnt during the GCSE to complete their final prototype. They will also learn about how products are tested and evaluated and will apply this to their NEA portfolio by testing and evaluating their final prototype. They will focus on producing their manufacturing specification – scaled technical drawings, plans of making, cutting list, and evaluating their final design against their own criteria as set out in their design specification. They will complete their NEA by March 25th, after which they will focus on revising for their exam, we will focus on materials knowledge, knowledge of environmental and ethical concerns, application of drawing skills.

NEA - REALISING DESIGN IDEAS
Students will revisit technical drawing and will produce and orthographic drawing of their final design for their NEA portfolio. They will also learn how to cost a project and will cost their NEA practical work. They will use the theory and practical skills developed over the course to realise their design idea and make their final prototype.

NEA - DEVELOPING DESIGN IDEAS
Students will learn about different approaches to design development from rough modelling, to detailed models and even CAD modelling. They will understand the pros and cons of each approach and will apply their understanding to their NEA.

NEA - GENERATING DESIGN IDEAS
Students will learn about the different ways designers generate design ideas. They will understand the pros and cons of each method. They will apply this learning in their NEA by generating and developing their own ideas to the AQA contexts. They will produce work for their NEA portfolio. They will also develop their understanding of key concepts like ergonomics, anthropometrics and the social, moral, ethical and environmental factors that can affect design.

NEA BEGINS (1)
Students will begin their NEA (Non-Examination Assessment) which accounts for 50% of their final GCSE.

On 1st June AQA will release the exam contexts. Shortly after students will apply all of their learning from their D&T lessons to undertake a design and make project and portfolio. They will work on this until Easter 2023.

During this half term they will focus on the following:
- Task analysis
- Design brief
- Research
- Design Specification

WOODEN PASSIVE AMP & DESK TIDY and REVISION
Students will work on two concurrent projects this half term:

Wooden passive amplifier and desk tidy
Students will apply all their learning from the past year and a half to manufacture a passive amplifier and desk tidy.

Revision
Students will revise key theory covered in past year and a half to prepare them for PPE series.

ERGONOMIC TOOTHBRUSH
Properties & applications of smart & modern materials. Ergonomics & anthropometrics
Polymers
Modern materials - polymorph
Testing & development techniques
They will build and develop an understanding of smart materials, modern materials, technical textiles and composite materials. They will learn the names, applications and properties of these materials.

NEW & EMERGING TECHNOLOGIES
Students will work on three projects this half term:

They will complete the trophies started last half term.

They will build and develop an understanding of energy generation & storage, smart materials, modern materials, technical textiles and composite materials. They will learn the names, applications and properties of these materials.

They will also work on a mechanisms project where they will learn about cams, gears and pulleys. They will learn about different forms of movement, the functions of mechanical devices and understand how mechanisms can be used to change forces.

DESIGN VENTURA (Pt2) & HOUSE TROPHIES
Students will work on two concurrent projects this half term:

Design Ventura
Students will develop and finalise their ideas before entering the competition. Students will develop their understanding of CAD/CAM.

House Trophies
Year 10 GCSE students have been tasked with the challenge of designing and making prototypes for the new House trophies. They will develop their understanding of working with a client to develop an idea and will learn how to use CAD/CAM to model and realise ideas.

DESIGN VENTURA (Pt1) & ALUMINIUM POPPIES
Students will work on two concurrent projects this half term:

Design Ventura
National design competition run by Design Museum. Students will further develop their knowledge & understanding of the design process. This section of the process will focus on research and idea generation.

Remembrance Poppy's
Students will learn about metals, metal processes, scales of production by working in teams to batch produce poppy's from recycled aluminium to make a remembrance installation. Properties & applications of metals. Working with metals. Ensuring quality control (Tolerances, accuracy, material management). Maths in D&T - calculating waste, calculating costs.

YEAR 10

DYSON ENGINEERING BOX INVESTIGATION
Within this unit students will have the opportunity to disassemble products in order to analyse them in detail. They will learn about why designers use 'product analysis' as a research tool. Students will learn about a range of careers within D&T with a focus on Engineering as a sector of D&T. Within this unit students will also look at the properties and uses of modern materials, specifically carbon fibre, compared to a polymer – nylon.

The knowledge and understanding of product analysis and the materials we are focusing on will support students as designers, in their written assessments and within their NEA.

Careers in D&T - Engineering, Product analysis and disassembly. Properties and uses of modern materials - carbon fibre. Science in D&T.

MEMPHIS MODELLING
Work of others - Memphis and Ettore Sottsass. Cardboard modelling techniques. Using templates for accuracy. Properties & applications of papers & boards.

METALWORK: "Metal spoons/forks"
Properties & applications of metals. Working with metals. Ensuring quality control (Tolerances, accuracy, material management). Maths in D&T - calculating waste, calculating costs.

ERGONOMIC RESEARCH & ARCHITECTURE INSPIRED CAD/CAM JEWELLERY
Students will complete an ergonomics research Home Learning task and will complete the CAD/CAM project below in lessons.

Through the architecture inspired jewellery project students will learn about CAD/CAM. They will learn how to operate 2D Design and the laser cutter. They will learn the properties of polymers. They will further develop their understanding of what it means to work for a client.

V&A INNOVATE CHALLENGE (Pt2) & BATCH PRODUCED CHRISTMAS TREES
Students will work on two concurrent projects this half term:

They will continue and finalise their work for the V&A Innovate competition focusing on: Developing design ideas through sketching & modelling. Evaluating design. Presenting design ideas.

They will also be learning about scales of production, business models and will further develop their practical skills through making a set of batch produced Christmas trees.

FOUNDATION GCSE KNOWLEDGE UNIT/ V&A INNOVATE CHALLENGE (Pt1)
Students will work on two concurrent projects this half term:

They will work on the national design competition "Innovate" being led by V&A Museum, London. They will focus on developing an understanding of: Examining the work of others. Sketching skills. Generating ideas from inspiration. Introduction to materials theory. Research for design skills. Analysis skills.

They will also work on a basic wood working project where they will learn fundamental materials theory and will be re-introduced to basic wood working machines and processes but in greater depth.

YEAR 9

FOOD: ONE POT MEALS (PART 2)
This unit will be taught as part of a carousel of units so could be taught at any point between February half term and summer holidays.

The rationale for this module is to explore reasons you should swap your Takeaway for a Fakeaway. Linking to the growing awareness that takeaways are bad for our waistlines, bank balances and the planet, there's a new food concept gaining momentum in the UK, the 'fakeaway'. Unit 2 focuses on food choices and nutritional needs including:
• Allergens / Culture / Life stage
• How to adapt a meal
• Food sustainability
• Snack Bars
• Bean Burger
• Goujons & Wedges
• NEA 1: Food Science Investigation – Sugar

• Assessment: BYOB Build Your Own Burger (with sides)

D&T: DESIGN HISTORY
"Design is history, design is now" Students will be learning about key points in design history and will look at a diverse range of designers working today. They will look at how world events shape design and vice versa. They will design and make a range of products using design history as their influence. They will consolidate the design and making skills developed over Year 7 & 8.

GUIDED CHOICES EXPLORATION
During this half term students will find out what further study in GCSE Design & Technology and GCSE Food Preparation & Nutrition involves. They will learn about the wider issues within each of the subjects. They will learn about the wide and varied pathways post-16 in both of these sectors. They will undertake assessments that will identify for staff and students the key skills and attributes needed for success in each of the subjects.

D&T: E-TEXTILES
This unit will be taught as part of a carousel of units so could be taught at any point before February half term.

Students will be introduced to systems and control in D&T. They will understand basic circuit diagrams and will design and make a small textiles product that has a simple e-textiles circuit running through it. The context they will explore is "Road safety". They will learn the different types of fabric construction and will start to understand the complex environmental issues surrounding textiles production.

D&T: BIOMIMICRY
This unit will be taught as part of a carousel of units so could be taught at any point before February half term.

They will learn about approaches to design, design strategies, how to generate new and original ideas. They will further develop their understanding of the iterative design cycle. They will learn what biomimicry is and how designers use it to develop new products. They will learn the names, properties and uses of a variety of smart and modern materials. They will learn basic model making skills and will design a new chair inspired by biomimicry. They will learn the names, properties and uses of a variety of smart and modern materials.

FOOD: FAKEAWAY (PART 1)
This unit will be taught as part of a carousel of units so could be taught at any point before February half term.

The rationale for this module is to explore reasons you should swap your Takeaway for a Fakeaway. Linking to the growing awareness that takeaways are bad for our waistlines, bank balances and the planet, there's a new food concept gaining momentum in the UK, the 'fakeaway'. This Unit focuses on the 7 components for a balanced diet (function & sources) which are:
• Macronutrients (carbohydrates/fats/protein)
• Micronutrients (vitamins & minerals)
• Other nutrients (water & fibre)
• Sauces (roux sauce & tomato sauce)
• Posh Mac & Cheese
• Pizza (own sauce)

• Assessment: Ready Meal (Roux OR Tomato based dish)

YEAR 8

D&T: PHONE STAND
This unit will be taught as part of a carousel of units so could be taught at any point in the academic year.

During this part of the unit students will learn how to apply their design and practical skills to make their design using woodwork tools and machinery, they will consolidate their understanding of how to work safely in a D&T workshop.

D&T: BLOCK BOT
This unit will be taught as part of a carousel of units so could be taught at any point in the academic year.

During this part of the unit students will learn how to design a product, apply a source of inspiration, understand where timbers come from and the environmental impacts of timber. They will learn fundamental practical skills such as marking out, cutting straight lines, cutting curves, drilling, sanding, finishing.

FOOD SMART (PART 2)
This unit will be taught as part of a carousel of units so could be taught at any point in the academic year.

This module explores the reasons you should swap your current food snacks for smart swaps, developing an understanding that these simple food swap can help reduce sugar, salt, saturated fat & increase fibre. Linking to the NHS 'Change 4life' campaign 'Be Food Smart'.
• Energy balance
• Factors affecting food choice
• 101 Knife skills
• Breakfast bars / energy balls
• Breakfast Muffins
• Rainbow Fruit kebabs/fruit salad/fruit art
• NE1: Food Science Investigation - Enzymic browning
• Assessment: Scones

FOOD SMART (PART 1)
This unit will be taught as part of a carousel of units so could be taught at any point in the academic year.

This module explores the reasons you should swap your current food snacks for smart swaps, developing an understanding that these simple food swap can help reduce sugar, salt, saturated fat & increase fibre. Linking to the NHS 'Change 4life' campaign 'Be Food Smart'.
• Eatwell Guide
• Ultra processed foods
• Food labels
• Food hygiene & safety
• 101 Knife skills
• Sensory analysis
• Coleslaw (variations)
• Layered Pasta Salad
• Rainbow Couscous
• Posh Pot Noodle
• Intro to bread (doughballs)
• Assessment: Pizza

DESIGN SKILLS: CAD (COMPUTER AIDED DESIGN)
This unit will be taught as part of a carousel of units so could be taught at any point in the academic year.

Develop and communicate ideas using CAD. Understand the advantages and disadvantages of CAD. Understand the difference between CAD and CAM (Computer Aided Manufacture). Intro to polymers. Students will design and make a simple laser cut keyring. They will then apply their knowledge and understanding to design and produce a laser cut promotional egg holder for Cadbury's Creme Egg Easter promotion under the title "How do you eat yours?".

FOUNDATION D&T SKILLS
Sketching skills (freehand & isometric)
Introduction to Health & Safety (H&S)
Template keyring - Intro to timbers and maths in D&T
Intro to food hygiene

YEAR 7