Curriculum Overview

Curriculum Area: Design Technology Year: 9

Year 9 Curriculum: Timbers

All pupils will learn how to design, create, make and evaluate a designer inspired clock. Pupils will develop their cultural design knowledge by learning about design movements and their work. These will include Alessi and Memphis. Pupils will learn how to take inspiration from other designers to inspire and improve their existing product research. All pupils will learn to build on their design skills by being introduced to scamper design to help to improve diversity within their own design range as well as revisiting isometric drawing and perspective drawing. Pupils will practise the technique of vacuum forming by making a tea bag holder. They will learn how to use the vacuum former, how it works, and what materials it uses.

Links to the KS3 National Curriculum

Design: Use research and exploration, such as the study of different cultures, to identify and understand user needs. Identifyand solve their own design problems and understand how to reformulate problems given to them. Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations, and computer-based tools.

Make: Select from and use specialist tools, techniques, processes, equipment, and machinery precisely, including computer-aided manufacture. **S**elect from and use a wider, more complex range of materials, components, and ingredients, considering their properties.

Evaluate: Analyse the work of past and present professionals and others to develop and broaden their understanding. Test, evaluate and refine their ideas and products against a specification, considering the views of intended users and other interested groups.

Technical knowledge: Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.

Assessment Opportunities

Core knowledge of this unit will be regularly tested and revisited during this unit with a knowledge quiz completed at the end.

Critical and summative evaluation of own product designed and made.

Formative assessments of product design and completion throughout the unit.

A photo of the finished product should also be included.

Cultural Capital

Pupils learn about metal casting and where metal comes from and how it can be cast into beautiful shapes to make designs. Pupils talk about the design movement art deco and what time period it is associated with looking at designers and icons from the art deco designers at the time.

Year 9 Curriculum: Polymers

All pupils will learn how to design, create, make and evaluate a bespoke USB pen. They will learn about the source origins and diversity of plastic and how this affects its working properties. Pupils will learn to plan and develop sketches form 2D designs into 3D designs using rendering and fine liners.

Pupils will learn how to measure accurately and translate this to a computer aided design to enable them to use the laser cutter accurately to create their bespoke USB drive design. Pupils will learn how to write a design brief and detailed specification for their own work and then test their evaluation against it to see if the design meets the criteria set out.

Pupils will learn the safety rules regarding the use of Tensol liquid cement for gluing acrylic. (As the acrylic has been laser cut, the hand finishing required is minimal.) This project is centered on accuracy and attention to detail during the CAD element of the design. Pupils will learn how to evaluate and critically analyse their own work.

Links to the KS3 National Curriculum

Design: Identify and solve their own design problems and understand how to reformulate problems given to them. Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations. Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses. Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations, and computer-based tools.

Make: Select from and use specialist tools, techniques, processes, equipment, and machinery precisely, including computer-aided manufacture.

Evaluate: Test, evaluate and refine their ideas and products against a specification, considering the views of intended users and other interested groups. Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers, and technologists.

Technical knowledge: Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.

Assessment Opportunities

Core knowledge of this unit will be regularly tested and revisited during this unit with a knowledge quiz completed at the end. Critical and summative evaluation of own product designed and made. Formative assessments of product design and completion throughout the unit.A photo of the finished product should also be included.

Cultural Capital

Design and Technology is an inspiring, rigorous, and practical subject which prepares all young people to live and work in the designed and made world. Pupils take part in the iterative design process submerging themselves in the design possibilities to improve their own design work.