

KS3 Design and Technology overview 2021/22

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In KS3 Design and Technology students are introduced to a range of materials, tools and equipment and core theory, encouraging technical understanding, creativity and curiosity. The aim is always to be able to work safely, confidently and competently in the Academy workshops. Throughout each material area students are taught about sustainability and where materials come from. CAD is also taught in year 7 and 9.

Year 7

The material areas learnt in year 7 are electronics, graphic design and 2D CAD and students are introduced to the workshop area by completing a focused practical task.

The focused practical task, in the second half of the autumn term, is making a wooden picture frame. This is focusing on skills in the workshop and by the end of this short project students will be able to use a range of hand and power tools safely and will be familiar with the process of making and evaluating a well finished product.

In the first half term students complete a 2D Design CAD project, learning the basics of this programme and having the opportunity to apply these skills in the summer term.

From January, students will make a speaker and packaging, designed for a particular user. They will learn to solder and work with wood (MDF); measuring, marking, cutting, joining and finishing accurately, safely and to a high standard. They will design and make the packaging for the speaker, learning about graphic design and blister style packaging.

Year 8

This year starts with a focused practical task of making and evaluating a wooden picture frame. This introduces students to the workshop, using hand and power tools safely and becoming familiar with the routines and expectations within a workshop environment.

The main project for year 8 is designing, making and evaluating a mechanical toy. This project teaches students about mechanisms and movement, specifically how cams create and transfer movement in products. Students will work within the material areas of wood (pine) and textiles. The moving part of the toy will be made from fabric. Within the area of textiles, students will learn about decorative techniques, joining fabrics and where fabric comes from.

Year 9

The first project for year 9 is a focused practical task: make and evaluate a keyring from aluminium. This will enable students to use tools, equipment and processes to mark, cut, drill and finish metal in the workshop. Students will learn where metal comes from, its life cycle and sustainability.

From January, year 9 students will be introduced to model making and plastic forming through a 'no waste' project. Model making (cardboard) is used to explore concepts and students will understand the importance of trying out ideas first before making a final prototype, this reflects the iterative design process at GCSE D&T.

During the second half of the spring term, students will learn the basics of 2D Design/stikka machine/CADCAM to produce a final product. The main material area for this project is plastic (acrylic) and students will learn how to form/bend plastic in the workshop using a line bender and vacuum former safely.

The final project for year 9 will be learning the basics of 3D CAD, Siemens Solid Edge. This skill is necessary to succeed at KS4 and students will learn how to create simple then more sophisticated shapes using this CAD programme.