Key Stage 4 (10)
Course title: Design and Technology
Exam board: Edexcel
Specification code: 1DT0/1F
Designers and designing During this project, students build on their drawing techniques and designing skills learned in the year 9 sustainable toy project. The students will work creatively within the constraints of a design brief and specification to produce a range of different chair designs. They will investigate and analyse the work of past and present professionals and companies to inform their designs. The students will develop a range of 3D and 2D drawings and presentation techniques to accurately communicate their thoughts and designs to a third party.
Wood Joint Box The wooden box project is a largely practical project that builds on skills developed in key stage 3. The practical nature of the topic is used to deliver key subject knowledge to the students and develop their use of tools and equipment in the workshop. During this project, students learn about the different global sources of timber and the environmental impact of timber production. They will learn about different methods of joining timber and apply them in practical work. The students will use CAD software to personlise their projects. Within this project, we have incorporated some independent homework tasks where students will need to research and investigate using materials provided within the booklet and external sources to complete given tasks.
Night Light Core (electronics) During this project students build on their knowledge and understanding of electronics learnt in year 9. They develop their knowledge of components and their functions but also gain an understanding of programmable components in the style of flowcharts. Students will learn about the different papers and boards, their properties, characteristics and applications. Alongside this, students will learn to develop their CAD drawing skills to develop a casing for their PCB. This forms part of the core principles required for their final summer examination. Students may also be required to demonstrate this knowledge throughout their non-examined assessment (coursework) in key stage 4 (year 11).
Core (Levers and Mechanisms) During this project the students learn about some simple engineering principles and systems. Topics include types of motion, classification of levers, types of linkages, cams, belts and pulleys, types and uses of different gears, input and output speed and velocity ratios. Students must be able to apply this subject knowledge in their final summer examination in key stage 4 (year 11). Students may also be required to demonstrate this knowledge throughout their non-examined assessment (coursework) in key stage 4 (year 11).

Core Materials

Students studying this topic will learn about a range of resistant and compliant materials (plastic, metals, smart materials, composite materials and textiles). This learning will build on a foundation of knowledge learned throughout year 7-9. The students will learn about the individual material's properties and characteristics and understand why certain materials are selected for different purposes. Students must be able to apply this subject knowledge in their final summer examination in year 11. Students will also be required to demonstrate this knowledge throughout their non-examined assessment (coursework) in year 11.

Sources of power

This topic introduces students to the variety of ways that energy can be generated and used in different products. Sources of power studied include nonrenewable energy such as oil, coal and gas, solar power, wind power, biomass, tidal energy and hydroelectricity.

The students will learn about the advantages and disadvantages that the different sources of power have. Students must be able to apply this subject knowledge in their final summer examination in year 11.

New & emerging technologies

During this project students will investigate the developing global marketplace and the environmental impact of the consumer market, looking at life cycle analysis, carbon footprints and recyclability of modern goods.