

## Design & Technology/ Engineering – Aims/Intent

Design and Technology is an inspiring, rigorous and practical subject. Using creativity and imagination, students design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Students learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

### Our intent is to provide opportunities for students to:

1. Use research and exploration, such as the study of different designers, to identify and understand user needs. Identify and solve their own design problems and understand how to reformulate problems given to them
2. 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, such as biomimicry and user-centred design, to generate creative ideas and avoid stereotypical responses
3. Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools
4. Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
5. Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties
6. Analyse the work of past and present professionals and others to develop and broaden their understanding
7. Investigate new and emerging technologies
8. Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups
9. Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists

## Implementation

### Key stage 3:

During Years 7 and 8, Design students follow a range of small designs and make projects in different material areas, including wood and textiles. Students will learn about designers of the past and present and apply this knowledge to their own design work.

### Key stage 4:

Y9/Y10/Y11 - Construction and Engineering Design focusses on resistant materials. Main areas include modelling in wood acrylic card and foam board. Students work through a range of topics covering skills in using hand tools as well as developing skills in drawing, 2D Design and using the laser cutter. In Year 10 they will begin their coursework; these are specific topics given by the exam board in June. The students are expected to work independently to design and create a product that meets a specific design brief. All work is evidenced in a PowerPoint.

### **Food Preparation and Nutrition**

It is important that pupils participate in all aspects of Food Preparation lessons in order to develop a range of skills that will stand them in good stead for their future or if they would like to pursue food as a career. Food Preparation and Nutrition is a requirement of the Key stage 3 National Curriculum where students will learn to; understand and apply the principles of nutrition and health, cook a repertoire of dishes so that they are able to feed themselves and others a healthy and varied diet, become competent in a range of related skills, understand the source, seasonality and characteristics of a broad range of ingredients understand the scientific principles of the preparation of food.

### **Impact**

In Design, students learn a range of different skills in three specialist areas, these are: Construction, Engineering Design. In all these areas students develop confidence and creativity. With the new reforms, there is a greater emphasis on construction and engineering drawing skills. These skills are implemented early at KS3 so by KS4 students are confident and able to communicate their thoughts and ideas through a variety of different ways. Students are aware of sustainability and how the movement of products and product packaging can affect the planet

### **Enrichment opportunities-**

Students participate in visits to the Design museum. Students are involved in STEM technology opportunities and participate in rotary challenges with other schools. There are also various lunch time activities for students to participate in.