

Design Technology

Overview

The UK is crying out for people with a high level of technical skills. We have a great history in engineering, design, fashion and craftsmanship that is in danger of being lost. The new national curriculum confirms the importance of a technical education for all students at KS3. King Charles I School has always believed in providing a high quality technical route for students who wish to take a more practical approach to learning or who wish to move on to higher education to study design technology to degree level or beyond.

The design technology and computing department is a continuously evolving and thriving department, committed to helping all students achieve their full potential. Our aim is to offer students a wide range of different and interest projects, focusing on every aspect of computing and design technology. The department works as a team, with the strength being the sharing of resources and support wherever possible.

In design and technology students combine practical and technological skills with creative thinking to design and make products and systems that meet human needs. They learn to use current technologies and consider the impact of future technological developments. They learn to think creatively and intervene to improve the quality of life, solving problems as individuals and members of a team.

Students follow the national curriculum programmes of study and the course is delivered through projects which combine both designing and making. Within their projects students combine practical and intellectual skills with an understanding of aesthetic, technical, cultural, health, social, emotional, economic, industrial and environmental issues. As they do so, they evaluate present and past design and technology, and its uses and effects. Through design and technology students develop confidence in using practical skills and become discriminating users of products. They apply their creative thinking and learn to innovate.

KS3 curriculum

In Key Stage 3 students follow the national curriculum programmes of study and the course is delivered through projects which combine both designing and making. The complexity of the projects increases as the students' progress through the key stage. Students will cover projects in product design, CAD/CAM, graphics, food and textiles across years 7, 8 and 9.

KS4 curriculum

The subjects offered at KS4 are product design, electronics, catering and textiles. At GCSE design technology is about providing opportunities for students to develop their capability, combining their designing and making skills with knowledge and understanding in order to create quality products. Throughout their selected option subjects students will, investigate, disassemble and evaluative products and their applications. Work on focused practical tasks to develop skills using a wide range of tools, machinery, equipment and computer programs are used to develop an understanding of materials and components within an industrial context. Use systems and control, including mechanical, electrical and electronic structures and achieve quality within their designing, sketching and manufacturing. Safety is fundamental so students understand health and safety issues within a workshop/ catering room/ textiles room. The use of technology is key to unlocking students potential so computer aided design such as ProDesktop & 2D Techsoft Design is used to extend learning CAD is supported by the use of specialist equipment (laser cutters, CNC lathe & router).

Catering

The catering GCSE course provides the students with a real practical experience of catering, students are taught a range of practical skills in a newly refurbished catering kitchen where they

are encouraged to apply the principles of nutrition and health and to cook a wide repertoire of dishes.

There is one tier assessment covering grades A-G consisting of:

Unit 1: written paper 40%

Unit 2: 2 pieces of controlled assessment worth 60%

Textiles

The textiles course is designed to provide opportunities in designing, making and evaluating. The students are allowed to develop their own ideas through a variety of different textiles projects. The course involves small projects mixed with focused practical tasks. Within the project work pupils have opportunities to develop their practical skills by experimenting with decorative textiles techniques, designing and making clothes and accessories, making own fabrics, using CAD CAM embroidery machine plus much more.

There is one tier assessment covering grades A-G consisting of:

Unit 1: written paper 40%

Unit 2: 2 pieces of controlled assessment worth 60%

Product design

Product design encourages students to design and make products with creativity and originality, using a range of materials such as paper and card, plastics, textiles, ceramics, food, electronics, timber based materials, and ferrous and non-ferrous metals. Candidates will also develop a variety of techniques for working with these materials.

There is one tier of assessment covering grades A* to G consisting of:

Unit 1: Written Paper 40%

Unit 2: Design and Making Practical 60%

Electronic Products

Electronic Products encourages students to use a wide range of electronic components with appropriate materials to package an electronic circuit.

There is one tier of assessment covering grades A* to G consisting of:

Unit 1: Written Paper 40%

Unit 2: Design and Making Practical 60%

KS5 curriculum

Two types of courses are offered at key stage 5, level 3 BTEC art and design textiles and A-level product design allowing our students to experience versatility within design technology and to help them continue to progress into their chosen field of design technology after sixth form.

The structure of the specification allows students to develop a range of skills and outcomes at Advanced Subsidiary (AS), demonstrating their creativity, and apply these to a design and make project at Advanced level (A2). The specification seeks to develop students' knowledge and understanding of, and skills and application in, designing products. They will also develop their research, analysis, product development, project planning and evaluation skills.

BTEC level 3 art and design textiles

Level 3 BTEC art and design textiles course gives the students an opportunity to experience a wide range of different textile disciplines from creative 3 dimensional textiles art to more structured pattern cutting and garment manufacturing, helping to prepare the students for higher and further education in the field textiles, fashion and art.

The course is equivalent to an A-level qualification and is 100% coursework.

Product design

During year 12 students develop their creative, technical and practical skills through a series of product investigation, design and manufacturing activities. Students will gain knowledge and

understanding of a wide range of materials and processes and they will also learn about industrial and commercial practices, and the importance of quality checks and the health and safety issues.

In year 13 students develop their knowledge and understanding of a range of modern design and manufacturing practices and contemporary design issues. Students will also design and make a product of their choice but must adopt a commercial design approach to their work, reflecting how a professional designer might deal with a design problem and its resolution.

There is one tier of assessment consisting of:

Unit 1: Written Paper - PROD1 materials, components and application 50% of AS, 25% of A Level

Unit 2: Practical - PROD2 learning through designing and making 50% of AS, 25% of A Level

Unit 3: Written Paper - PROD3 design and manufacture 25% of A Level

Unit 4: Practical - PROD4 design and making practice 25% of A Level

SMSC in design and technology

In design technology social, moral, spiritual and cultural is developed in a number of ways. We teach our students to think about the impact of their designing and making on the environment, people and the wider world. We teach our students about the importance of the 3 R's and sustainability to encourage them think about their responsibility as part of the future generation. Students are expected to demonstrate high standards of behaviour and encourage their peers to do the same to develop a sense of social responsibility and respect.

Respect and positivity is encouraged through the process of peer evaluation of each other's work. Within lessons we encourage students to take and give criticism positively and to verbally explain their thoughts in a respectful and positive way.

We encourage students to take chances within their work, taking inspiration from the wider world and enjoying the process of developing and manufacturing functioning products which reflect the personality and style of each individual student.

Spiritual development in design and technology

Spiritual development and self-belief is of high importance in design and technology. The creative designing and making process inspires students to bring out their hidden talents, which helps all students with self-confidence and belief in their own abilities. Our students are taught how to investigate products, aesthetic and functional, past and present and examine how they affect the quality of our daily lives. They are encouraged to develop their thinking skills and explore the wider world and use this inspiration when developing their own design ideas.

Moral development in design and technology

In design and technology we try to develop a sense of 'moral conscience' in our students. We teach students to consider the wider impacts on the environment when designing and making new products, and encourage them to think about their chosen materials and components and whether they are taking into account sustainability and the environmental impact of their design choices. The 3 R's are frequently discussed throughout the designing and making process. Within the lessons pupils are expected to show respect to others and take responsibility for their own actions and encourage others to do the same.

Social development in design and technology

As part of the student's social development within design technology we encourage students to accept responsibility for their behaviour and the safety of others by enforcing clear expectations which in turn provides our students with a safe, secure and structured learning environment. We encourage team and pair work to help build mutual respect and to be accepting of each other's strengths and weaknesses. We encourage our students to take part in self and peer evaluation,

which allows students to give their opinions and to give and accept constructive criticism as a way to improve their outcomes.

Cultural development in design and technology

Within design technology students are taught to consider that all their design work should be sensitive to needs and beliefs of different cultural backgrounds or groups of people, ensuring all imagery, text and products produced will not be deemed as being offensive. Students are given opportunities to use the work of artists, designers and inspiration from the wider world and from a wide range of cultures and historical contexts to influence and help develop their own work.