

Design and Technology

Key Stage 3

Intent

Design and Technology provides opportunities for students to develop design and making skills to create quality products through learning about materials and textiles technology, Computing Aided Design, electronics, engineering and food and nutrition.

In Key stage three students build confidence in using a range of hand tools, machines and computer aided software independently and safely throughout workshop, CAD studio and kitchen environments.

At the end of Key Stage 3 all students will:

- Have practical experienced in making a range of products using different materials
- Have an understanding of how products are made
- Be technically competent in using CAD design software packages
- Understand and apply the principles of nutrition and a range of cooking techniques
- Be able to develop create design ideas to adapt products for different users
- Be able to evaluate, test and refine products

This foundation of skills underpins the curriculum choices available at GCSE level.

Implementation

In Key Stage three students will gain practical experience in different aspects of Design and Technology on a rotation basis. They will spend seven weeks in each of the areas: Product design in the workshop, product design in the materials studio and Food and Nutrition.

- Technology lessons follow a carefully planned scheme of work
- Teachers will demonstrate clearly practical tasks
- Teachers will teach relevant Health and Safety guidelines and ensure they are applied
- Knowledge organisers are used
- Technical vocabulary is taught
- Teachers will break down content and skills into small steps
- Students will use design skills to modify and adapt a product
- Students will use machines and tools to manufacture products
- Questioning is used to check understanding
- Verbal feedback given throughout practical tasks
- Peer and self-assessment reviews design and making skills
- Learning reviews take place at the start of each lesson
- Students will use CAD technology in the form of 2D Design and Google sketch up
- Appropriate homework is set that includes learning of vocabulary and product research and analysis

- Students are assessed on making skills throughout the project and on technical knowledge at the end of the project

Impact

All students will make good progress and gain experience in designing and producing good quality prototype products through practical work and have a good understanding of a wide range of technical processes including CAD.

This foundation of skills underpins the curriculum choices available at GCSE level.

The knowledge and skills learned in Key stage 3 forms a foundation for all the course options at Key stage 4. There are several subject choices available at GCSE level which include Engineering Cambridge National, GCSE Art Textiles, GCSE Art Graphics and GCSE Food and Nutrition

Design and Technology

Key Stage 4

Intent

Design and Technology aims to deliver a broad range of relevant and accessible courses in a motivating and encouraging way. Students develop independence and a high level of skill and are supported and challenged in their learning journeys.

At the end of key stage 4 students will:

- Be technically competent in techniques relevant to chosen specialism
- Be independent in their choice of techniques
- Be proactive in their ability to research relevant designers/techniques/influences
- Be able to communicate their ideas and intentions clearly
- Be able to communicate technical knowledge clearly

Implementation

- Lessons follow a carefully planned scheme of work
- Teachers will demonstrate clearly practical tasks
- Teachers will teach relevant Health and Safety guidelines and ensure they are applied
- Knowledge organisers are used
- Technical vocabulary is taught
- Teachers will break down content and skills into small steps
- Students will use relevant machines, tools and equipment to produce outcomes
- Questioning is used to check understanding
- Verbal feedback given throughout practical tasks

- Peer and self-assessment reviews ideas, design and making skills
- Individual learning reviews are completed with students to identify onward project steps
- Students studying Engineering will use CAD/CAM technology laser cutter and 3D printer to manufacture accurate technical outcomes appropriate for Non Examination Assessment modules
- Graphics or Textiles courses will use CAD technology in the form of 2D Design, fireworks and Google sketch up to communicate ideas and outcomes
- Appropriate homework is set fortnightly
- Exam technique and questions are practiced (Food & Engineering)
- Online revision tools are used
- Students are assessed at the end of every project using exam syllabus criteria
- Additional support is available after-school

Impact

The courses available lead to a broad range of academic and vocational opportunities courses at higher education. The Engineering course leads to opportunities in a range of Engineering and Multi-trade Apprenticeships and Higher Education courses. Textiles and Graphics courses give students a breadth of transferrable skills enabling them to follow creative pathways in Art, Photography, Textiles, Multimedia or Web Design courses. The Food and Nutrition course allows students to follow either Level 3 in Food, Science and Nutrition or catering and hospitality industry related courses.