DESIGN & TECHNOLOGY

SHUTTLEWORTH COLLEGE

CURRICULUM 2020-21

KEY STAGE 3

Pupils experience a rotation of subjects within Key Stage 3 Design & Technology in each academic year as outlined below:

Year 7:
Textile Design: Mini Monsters: An introduction to sustainability, natural and man-made fibres, designing for a purpose and hand sewing skills.
Graphic Design: Packaging & Promotion: Drawing skills, surface nets, typography, paper manufacture, commercial printing processes and finishes, designing to a brief.
Product Design: Timbers: Trinket Box: Sublimation printing, timbers, CAD design, practical wood- working skills
Cooking & Nutrition: The principles of health and safety, healthy eating and dietary needs

Year 8:
Textile Design: Sensory Cushion: Writing a specification, surface decoration techniques, machine based embroidery and construction, costing.
Graphic Design: Paper Engineering: Mechanisms, lever and linkages, commercial printing processes, LED components, designing for a purpose
Product Design: Polymers and programming: Programmable Night Light: CAD/CAM, polymers, sublimation printing, programmable circuits.
Cooking & Nutrition: Food provenance, food choices, food miles, intolerances, labelling and budgeting

Year 9:
Textile Design: Garment construction: Measuring, product disassembly, pattern cutting, sewing machine techniques and computerised embroidery, CAD/CAM, product construction and fitting.
Product Design: Biomimicry and Biomorphic: Responding to a design problem, iterative design, testing and evaluation
Product Design: Ergonomics: Ergonomic Pen: Responding to a design problem, primary and secondary research, anthropometrics and ergonomics, smart and modern materials, modelling, quality control, exploded drawings
Cooking & Nutrition: Food-bourne illness, food poisoning, food storage, risk assessments, production plans

DESIGN & TECHNOLOGY

SHUTTLEWORTH COLLEGE

CURRICULUM 2020-21

KEY STAGE 3

Students complete a baseline assessment in Design and Technology, upon which personalised targets are set and which in turn, links to our system of bronze, silver and gold lesson success criteria. This allows pupils to understand the varied approaches to tasks and work independently to create and refine outcomes that often exceed their own expectations. They are formally assessed on two components within each area of study; firstly for their design and practical work and secondly on their retention of theoretical knowledge through a written assessment.

Students that are successful within the areas of Product Design, Electronics, and Textiles Technology demonstrate an inquisitive nature, ability to problem solve, and capacity to design and make for different purposes. Wherever they can, students should engage with activities that focus on the adaptation of products or construction of outcomes using a range of materials and processes. This could include adapting recipes, modifying clothing, creating accessories, assembling products and exploring movement through the use of elements such as levers, electronics and paper engineering.

STEM based activities develop both students' capacity to problem solve and construct outcomes. They could extend their creativity, knowledge and practical abilities through accessing the wealth of activities they can find on the internet. All our pupils are encouraged to cook at home and to modify recipes in order to stretch and challenge themselves. There is also a cooking club which runs weekly after school allowing pupils to cook a wide range of higher skill dishes.

DESIGN & TECHNOLOGY

SHUTTLEWORTH COLLEGE

KEY STAGE 4   CURRICULUM 2020-21

At Key Stage 4, students can choose to study **GCSE AQA Design & Technology**. The GCSE Design & Technology course has been designed to ensure students develop the skills, knowledge and understanding to participate confidently and successfully in an increasingly technological world. They will gain awareness and learn from wider influences on Design and Technology including historical, social, cultural, environmental, and economic factors. They will also get the opportunity to work creatively when designing and making and apply technical and practical expertise. As part of this GCSE students will study core technical, designing, and making principles, including a broad range of design processes, materials, techniques, and equipment. They also study timbers as an area of specialism.

The qualification has two assessed components:
Unit 1: an externally assessed written paper with a duration of 2 hours. (50% of final grade)
Sat at the end of Year 11, this comprises three sections:
- Section A: core technical principles, worth 20 marks
- Section B: specialist technical principles, worth 30 marks
- Section C: designing and making principles, worth 50 marks.

 Unit 2: a non-exam assessment (50% of final grade).
This is a 35 hour design task, begun in June of Year 10, selected from a range of tasks set by the AQA exam board. Students will be required to produce a portfolio of evidence and prototype product that cover the following criteria:
- Identifying and investigating design possibilities
- Producing a design brief and specification
- Generating design ideas
- Developing design ideas
- Realising design ideas
- Analysing & evaluating

The students that are most successful within Design & Technology are those that are committed to designing and making innovative, original, and high quality products that combine a range of materials and processes, substantiated by a thorough and well communicated design portfolio. The more time students dedicate to the subject outside of school hours, the better their outcomes will be. Students should aim to independently research the themes they are studying in greater depth and actively reinforce their learning by being inquisitive about the materials and construction methods used to make the products around them. They should practice their drawing skills by recording products around them in isometric form, using one and two point perspective and third angle orthographic projection. Improving their ability to use CAD to visualise and develop their ideas by downloading '**Tinkercad**' or '**SketchUp**' at home is also excellent. They could also research product outcomes created by others and keep up to date with new innovations via magazines or websites such as those named below. A great source of inspiration can also be university degree shows.