Altwood
Church of England School

Design Technology Department

Curriculum Overview - Year 8

First Rotation	**Second Rotation**	**Third Rotation**
4th Sept – 19th Oct.	7th Jan – 15th Feb	23rd April -24th May
29th Oct- 19th Dec (14 weeks)	25th Feb - 5th April (12 weeks)	3rd June – 23rd July(12 weeks)
2 weeks: ICT skills (5 hours)	2 weeks: ICT skills (5 hours)	2 weeks: ICT skills (5 hours)

KS3 Assessment Objectives

AO1: Design. To research and explore to identify and understand needs. Identify and solve design problems. Develop specifications to inform the design of innovative, functional and appealing products. Use a variety of approaches to design creative ideas. Develop and communicate ideas through annotated sketches, detailed plans, 3D and Mathematical modelling and digital presentation.

AO2: Make: Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer aided manufacture. Select from and use a wide range of complex components and materials taking into account their properties.

AO3: Evaluate Analyse the work of past and present professionals to develop understanding. Investigate new and emerging technologies. Test and evaluate and refine ideas, taking into account the views of intended users. Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of design, engineering and technologies.

AO4: Technical Knowledge Understand the use properties of material and the performance of structural elements to achieve functioning solutions. Understand how more advanced mechanical systems used in their products enable changes in movements and force. Understand how more advanced electronic systems can be powered and used in their products. Apply computer and electronic intelligence that responds to inputs.

The Big Picture: Working in a variety of materials and contexts to design model, build and test suitable design solutions

Micro-bit project: e.g. robotics, Microbit coding, moving mechanisms and card modelling.
3D Printing Project: e.g Smart Cities
Micro-bit project involves pupils advancing on the microbit programming they started in year 7. The discover problem solving by using programmable components. 3D printing project involves advancing CAD modelling techniques and their understanding of new and emerging technologies.
GREEN TASKS-
Investigation and research into new and emerging technologies. Using research and sources to generate a range of annotated ideas. Communicating design ideas in working drawings. Modelling and developing ideas using plasticine and CAD. Planning of manufacture, assembly and soldering. Final evaluation and testing.

Assessment Objectiv0se covered – AO1, AO2, AO3 ,AO4

Structures/ Bridges and Structures
Team build scaled bridge model Using pine, teams of 2 &3 design build and test their scaled design to find the winning and strongest design. Structures are investigated and tested with students able to identify the mechanical forces and strengths of both manmade and natural structures.
GREEN TASKS: Regular class tests on materials, forces and properties. Formative assessment of bridge designs and Summative evaluation of the tested bridge design.
Assessment Objectives covered – AO1, AO2, AO3 ,AO4

Term 5 and 6 Cookie Cookers
Students learn how to use 3D modelling software and how the 3D printing works. They will research and design a cookie cutter that will be 3D printed. The students will then learn about hygiene and safe working in kitchen setting before baking their cookies.
GREEN TASKS 3D modelling tutorials and challenges. Design ideas communicated using annotated sketches. Modelling and development in 3D CAD. Hygiene and safe working. Processes Evaluation grade including photo

Assessment Objectives covered – AO1, AO2, AO3 ,AO4

Term 5 and 6 Board Game Design
Student design model and design their own board game using CAD/CAM to manufacture a high quality interactive game of their choice.
GREEN TASKS - Designs formatively assessed, Summative tests on CAD/CAM Processes and production, Summative assessment of materials, equipment and processes Evaluation grade including photo of completed design.
Assessment Objectives covered – AO1, AO2, AO3 ,AO4