



## Curriculum Overview

### Year 10 – Design & Technology 2021-2022

#### Rationale for Year 10 Design & Technology

The Year 10 course consists of modules, which interleave powerful knowledge with opportunities for the students to practise applying the knowledge to their Design and Make skills. Within the planning for every module, the question asked is, “How is this knowledge going to improve the breadth and depth of the capacity to design and make so that they learn to become independent in finding resolutions to problems”.

The modules will prepare the students to be as independent as possible for their non-examination assessment at the start of June. In this assessment, students are given a choice of one of three unseen contexts into which they must identify a real world problem and work iteratively to find the best resolution that they can in forty hours.

#### What will students learn and why?

**Module 1: Foundation skills.** This is a transitional module progressing students from shallower skills sets learnt in KS3 to the deeper and wider skills and knowledge required for success at GCSE. In this module, drawing skills are focused so that students can repetitively practise and feel themselves getting better at drawn communication so that in later modules they can express their design thinking clearly and articulately. The students will learn how to model ideas in card and light materials so that they are able to iterate with speed later in the course.

**Module 2: Making skills and material knowledge.** In this module students focus on the knowledge and skills of working with a wide range of materials. They learn how to mark, hold, cut, join and finish a wide range of skills in a range of focused practical lessons. They will learn about the sources and origins of the core material groups along with their categorisation. In addition to a range of focused practical tasks, the students will manufacture a chair design that requires no glue so that they can apply their understanding of materials and to test their resilience in designing towards an uncertain outcome.

**Module 3: lighting.** This module is the first module where the students will work towards a long-term goal. It enables the students to learn “delayed gratification” and “time management” skills in aiming to develop a product within the half term. This module will enable students to develop their design capacity through sketching, drawing, model making and cad modelling. The sequence of lessons are structured so that the students conceptualisation of the light design will improve each lesson, but each lesson will have a focus on improving a specific skill.

The students will learn about casting and laminating and 3d printing.

**Module 5: Electronic Speaker.** Students will be learning systems and control, and understand circuit design. They are not expected to design their own circuit, but rather be able to recognise and parts of the circuit and the components. The students will be given a starting point for creating an “enclosure case” and they are expected to design the rest. The students research the work of existing designing and their design will be based on the research. The students develop their modelling skills and get a better understanding of how parts all fit together. They will then transfer the designs to the CAD software and create a technical specification of their product and 3d print their component parts.

**Module 6: Start NEA.** The students will start work on their independent project. They will explore each of the three contexts and select the one that they want to base their work on. They will develop their own design brief; identify their own specific context and primary users; conduct product analysis of similar existing products and of dissimilar products; conclude their thinking into a product requirement list and start designing their initial thoughts.

How will students learn?

Year 10 has been divided into 6 key modules. The length of each module is not uniform and is determined by the complexity of the technical skills and powerful knowledge that is being taught. The modules are designed to revisit knowledge of Designing & Making skills from previous modules and this revisiting will allow the students to engage with applying their knowledge and skills into new contexts.

How will students be assessed?

Low stakes assessment opportunities are leveraged weekly. Frequent low stakes retrieval tests and through questions answered on online platforms as part of weekly homework assesses the students. All of which are either self-marking or student marked.

A fortnightly 20-question test, gives students opportunity to develop answers that are more sophisticated than the frequent retrieval and homework tests.

The end of every module includes a “wicked” “real world” Design and Make assessment, which gives students the opportunity to apply their knowledge and skills to new contexts and develop confidence in the skills assessed in the NEA. This is completed during the holiday as a holiday homework.

Each module includes 2 extended pieces of writing which will be assessed against a competency framework and comparative judgement used to assess progress against peers.

What is the aim for learners by the end of the year in comparison to the previous year?

There is a distinct philosophic stance in GCSE Design Technology in which students study the impact of the designed world upon people and nature across the world. Students will be taught powerful knowledge, to better understand the designed world in which they live and are taught design strategies so that they are equipped to contribute through their own Design and Make activities.

The GCSE course builds upon the themes learned in KS3 and will enable the students to independently complete their own Design and Make assignment.